PRIMERGY TX200 S3 Server

Operating Manual

Edition December 2006

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There you will also find the addresses of the relevant User Documentation Department.

Certified documentation according to DIN EN ISO 9001:2000

To ensure a consistently high quality standard and user-friendliness, this documentation was created to meet the regulations of a quality management system which complies with the requirements of the standard DIN EN ISO 9001:2000.

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1 Introduction

The PRIMERGY TX200 S3 server is an Intel-based server for mid-size and large companies. The server is suitable for use as a file server and also as an application, information or Internet server. It is available as a floorstand or rack model. The floorstand model can be converted to a rack model using an optional conversion kit.

Thanks to its highly developed hardware and software components, the PRIMERGY TX200 S3 server offers a high level of data security and availability. These components include hot-plug hard disk drive modules and power supply units, optional redundant system fans, the Server Management *ServerView Suite*, Prefailure Detection and Analysing (PDA) und Automatic Server Reconfiguration and Restart (ASR&R).

Security functions in the *BIOS Setup* and on the system board protect the data on the server against manipulation. Additional security is provided by the intrusion detection and the lockable drive cover on the floorstand model and the lockable rack door on the rack model.

The rack model occupies 4 height units in the rack.

1.1 Documentation Overview

PRIMERGY manuals are available in PDF format on the *ServerBooks* DVD. The *ServerBooks* DVD is part of the *ServerStart Suite* supplied with every server system.

The PDF files for the manuals can also be downloaded free of charge from the Internet. The overview page showing the online documentation available in the Internet can be found via the URL: *http://manuals.fujitsu-siemens.com* (click *industry standard servers*).

Concept and target group of this manual

This operating manual describes how to install, set up and operate your server.

This manual is intended for those responsible for installing the hardware and ensuring that the system runs smoothly. The manual contains all the information required to install and operate your PRIMERGY TX200 S3.

It is assumed that users have some knowledge of hardware and data transmission, and a basic familiarity with the operating system that is being used. You should also have a good working knowledge of the English language.

Additional server documentation

The PRIMERGY TX200 S3 documentation consists of the following additional manuals:

– "Safety notes and other important information" manual (print version delivered together with the system, PDF file available on the *ServerBooks* DVD)

– "Warranty" manual (print version delivered together with the system, PDF file available on the *ServerBooks* DVD)

– Technical Manual for the D2109 system board (PDF file available on the *ServerBooks* DVD)

– "BIOS Setup" (PDF file available on the *ServerBooks* DVD)

– "PRIMERGY ServerView Suite - ServerStart" (PDF file available on the *ServerBooks* DVD)

– "PRIMERGY TX200 S3 Options Guide" (PDF file available on the *ServerBooks* DVD)

– "Global Array Manager Client Software User's Guide" (PDF file available on the *ServerBooks* DVD)

– "Integrated Mirroring User's Guide" (PDF file available on the *ServerBooks* DVD)

– "MegaRAID 320-0X Zero-channel PCI-X RAID Storage Adapter User's Guide" (PDF file available on the *ServerBooks* DVD)

– "MegaRAID Configuration Software User's Guide" (PDF file available on the *ServerBooks* DVD)

If you need a replacement copy of the *ServerBooks* DVD send the details of your server to the following e-mail address:
Reklamat-PC-LOG@fujitsu-siemens.com

Further sources of information:

- Technical manual for the corresponding rack
- Manual for the monitor
- Manual for *ServerView server management*
- Manual for the remote testing and diagnostic system *RemoteView*
- Documentation for the boards and drives
- Operating system documentation
- Information files in your operating system

(see also "Literature" on page 107).

1.2 Features

System board

The features of the system board (D2109) are described in the technical manual for the system board in relation to the hardware and in the BIOS setup manual for the firmware (see "Literature" on page 107).

Hard disk drives

The server is available in three basic variants: with SCSI, SATA, or SAS hard disk drives.

Basic variant with SCSI hard disk drive

The server has a drive cage that can accommodate up to six Ultra320-SCSI hard disk drive modules. Each hard disk drive module (HDD module) can accommodate a SCSI hard disk drive with an SCA (Single Connector Attachment) interface and a maximum height of 1 inch. The module is connected to the SCSI backplane without cables via the SCA interface. This allows hard disk drive modules to be easily plugged in or pulled out.

SCSI hard disk drives are controlled by a PCI SCSI RAID controller. If the server has a RAID configuration, the HDD modules can be exchanged during operation (hot plugging).

A HDD extension box can be installed optionally (with a maximum of three HDD modules). The hard disk drives in the extension box can also be controlled by the PCI SCSI RAID controller.

An external SCSI interface is also offered optionally to allow external storage subsystems to be connected. You will find further information in the Configurator (see “Literature” on page 107).

Basic variant with SATA hard disk drive

The server has a drive cage that can accommodate up to six SATA hard disk drive modules. Each hard disk drive module (HDD module) can accommodate a SATA hard disk drive with a maximum height of 1 inch. The module is connected to the SATA backplane without cables. This allows hard disk drive modules to be easily plugged in or pulled out.

The SATA hard disk drives are controlled by the Onboard SATA controller. If the server has a RAID configuration, the HDD modules can be exchanged during operation (hot plugging).

Basic variant with SAS hard disk drive

The server has a drive cage that can accommodate up to six SATA or SAS hard disk drive modules (the drives or drive modules cannot be mixed!). Each hard disk drive module (HDD module) can accommodate a SAS hard disk drive with a maximum height of 1 inch. The module is connected to the SAS backplane without cables. This allows hard disk drive modules to be easily plugged in or pulled out.

The SAS hard disk drives are controlled by a PCI SAS controller. If the server has a RAID configuration, the HDD modules can be exchanged during operation (hot plugging).

PCI Ultra320 SCSI RAID controller

A 2-channel PCI Ultra320 SCSI RAID controller is available for operating six SCSI hard disk drives.

The controller has its own configuration utility. More detailed information may be found in the “MegaRAID Configuration Software User’s Guide” manual (on the *ServerBooks* DVD under “Controllers”).

Onboard SATA controller

A SATA controller is integrated on the system board; up to six SATA hard disk drives can be connected to the controller. The LSI SATA RAID software supports RAID levels 0 and 1.

The controller has its own configuration utility. More detailed information may be found in the “Embedded MegaRAID Software User’s Guide” manual (on the *ServerBooks* DVD under “Controllers”).

PCI SAS controller in proprietary PCI slot 10

A PCI SAS controller with “Integrated Mirroring Enhanced” (IME) functionality is available in proprietary slot 10 for operating six SAS hard disk drives. IME also provides RAID functionality for configuration of the internal SAS hard disk drives (RAID level 1, 1E).

A separate utility is available to the controller for IME configuration. For further information, refer to the “Integrated Mirroring User’s Guide” on the *ServerBooks* DVD (select “Controllers” from the menu).

Zero Channel RAID (ZCR) controller (option)

A zero channel RAID controller can optionally be used (only in slot 1) for increased data security and availability of the server using SAS hard disk drives. RAID levels 0, 1, 5, 10 and 50 are supported.

The ZCR controller uses the PCI SAS controller using logic that is specially integrated on the PCI board.

Accessible drives

A number of mounting locations are available:

– two 5.25 inch half-height (1.6 inch) locations for accessible drives (CD burner or magnetic tape drive).

  Alternatively, two of these locations can be used to install a 3.2 inch high accessible drive (magnetic tape drive) or HDD extension box.

– one 5.25 inch half-height (1.6 inch) location with a 3.5 inch floppy disk drive (1.44 MB). A slimline DVD drive (optional) can also be installed. You will find further information in the Options Guide (see “Literature” on page 107).

The accessible drives cannot be replaced during operation.

Power supply

In its basic configuration the server has a fixed, wide-range power supply unit or optionally a hot-plug wide-range power supply unit that adjusts automatically to any power voltage in the 100 V - 240 V range. An additional hot-plug power supply unit can optionally be installed to ensure redundancy of the power supply. If one power supply unit fails, the second power supply unit in the redundant configuration ensures operation can continue uninterrupted. The defective power supply unit can be replaced during operation (for further details see section “Hot-plug power supply units” on page 85).

Cooling

In the standard configuration, the server is cooled by a large fan unit consisting of two separate system fans (Silent Fan Bridge).

In the optional, hot-plug configuration, two system fans and two CPU fans are installed. Each redundant pair consists of two system fans. Each CPU fan is assigned to a CPU.
If **one** system fan **in one** redundant pair fails, the system will continue to work without restriction. A defective system fan can be replaced during operation (for further details see section “Replacing a Hot-pluggable CPU/System Fan” on page 96).

The power supply fans are fitted in the respective power supply unit.

High level of availability and data security

When memory data is accessed, 1-bit errors in the main memory are identified and automatically corrected with the ECC (Error Correcting Code) method. The patented memory scrubbing function regularly starts up the EDC mechanism and thus ensures continuous data integrity.

The memory modules used support SDDC technology (Chipkill™), which also increases the effectiveness of the monitoring and correction of memory errors.

Support is likewise provided for hot-spare memory technology, in which a memory bank is used as a replacement bank (provided that all occupied memory banks have exactly the same memory configuration). If a memory module fails, the bank with the defective memory is automatically deactivated and the replacement bank is activated in its place (assuming it has been configured appropriately in the BIOS). The deactivated memory bank is no longer used and the faulty memory module can be replaced at the next opportunity.

ASR&R (Automatic Server Reconfiguration and Restart) restarts the system in case of an error and automatically "hides" the defective system components.

The PDA (Prefailure Detection and Analyzing) technology from Fujitsu Siemens Computers analyzes and monitors all components that are critical for system reliability.

Optional RAID controllers support RAID Levels 0, 1 and 5 and increase system availability.

The hot-plug HDD modules offer increased availability.

Server management

Server management is implemented using the *ServerView* software supplied combined with PDA (Prefailure Detection and Analyzing) technology from Fujitsu Siemens Computers. PDA reports the threat of a system error or overload at an early stage, allowing preventive measures to be taken.

ServerView enables the management of all PRIMERGY servers in the network via a central console. *ServerView* supports the following functions:

- Round-the-clock monitoring, regardless of server status
- High-performance, graphical console bypass (AVR) protected by HTTPS/SSL (128 bit)
- Remote Storage via USB
- Remote power on (Wake On LAN)
- Intrusion detection in the floorstand model
- Temperature monitoring of the CPU and the surrounding area
- Monitoring of the utilization of the PCI buses
- Detailed status and error reports for bus systems, processors and main memory
- Watchdog timer for Automatic Server Reconfiguration and Restart (ASR&R) in the event of failure of memory modules or processors
- Power monitoring
- End-of-life monitoring of fans with prompt notification before failure
- Watchdog timer for operating system monitoring and application monitoring with ASR&R

Further information about *ServerView* server management is provided in the associated documentation (see “Literature” on page 107).

ServerStart

The *ServerStart* software supplied allows you to configure your PRIMERGY server quickly and purposefully. User-guided menus are available for installing the server operating system (for further details see section “Configuring the Server” on page 72).

Service and support

PRIMERGY servers are service-friendly and modular, enabling quick and easy maintenance.

The handles and locks (touch point) of the different hot-plug components are colored green to ensure simple and immediate recognition.

In order to avoid damage to components by incorrect handling when they are being installed and removed, green highlighting also identifies the areas of all components that can be touched without causing damage to the respective component.

The Flash EPROM program supplied with the Fujitsu Siemens Computers utilities supports a fast BIOS update. The optional *RemoteView* remote testing and diagnostic system enables you to remotely maintain your PRIMERGY TX200 S3 server. This enables remote diagnosis for system analysis, remote configuration and remote restart should the operating system or hardware fail.

RemoteView

RemoteView is the remote management solution from Fujitsu Siemens Computers for Intel-based PRIMERGY systems. *RemoteView* and the relevant hardware components integrated on the system board allow remote monitoring and maintenance as well as fast restoration of operability in the event of errors.

Remote monitoring and maintenance avoids time-consuming and costly on-site repairs and reduces service costs. This leads to a reduction in the total cost of ownership and an excellent return on investment for the remote management solution.

The administrator can access all system information and information from the sensors such as fan speeds, voltages etc. via a Web interface (iRMC Web interface). He can also start the text-based or graphical console bypass (Advanced Video Redirection, AVR) and obtain information about remote storage.

RemoteView helps

- switch on/off the system remotely
- monitor systems and analyze the cause of faults
- prepare error resolution or to have this process initiated independently if possible
- identify potential sources of error
- configure the system
- adjust system settings and initiate system restarts from a remote location.

1.3 Notational Conventions

The following notational conventions are used in this manual:

Italics	indicate commands, menu items or software programs.
“quotation marks”	indicate names of chapters and terms that need to be emphasized.
►	indicates activities that must be performed in the order given.
ATTENTION!	indicates that, if you ignore the information given at this point, your health, the correct functioning of your system or the security of your data may be at risk.
	indicates supplementary information, remarks and tips.

1.4 Technical data

Electrical data (power supply)

	Standard	Hot-plug
Power supply unit	Wide range	
Rated voltage range	100 V - 240 V	
Frequency	50 Hz - 60 Hz	
Rated current with basic configuration	100 V - 240 V / 4.4 A - 1.5 A	
Max. rated current:	100 V - 240 V / 9.0 A - 5.0 A	
Effective power	766 W	798 W
Apparent power	782 VA	809 VA
Heat dissipation	2758 kJ/h	2873 kJ/h
Main power fuse	16 A	
Protection class	I	

Compliance with regulations and standards

Product safety and ergonomics	IEC 60950-1 / EN 60950-1, UL/CSA 60950-1, CNS 14336 / GB 4943 / EN 50371
Electromagnetic Compatibility	FCC class A CNS 13438 class A; VCCI class A AS/NZS CISPR 22 class A / GB 9254 class A GB 17625
Interference emissions	EN 55022 class A
Harmonic current	EN 61000-3-2
Flicker	EN 61000-3-3
Interference immunity	EN 55024
CE marking to EU directives	Low-voltage directive 73/23/EEC (Product Safety) Electromagnetic Compatibility 89/336/EEC

Mechanical values

	Floorstand Model	Rack Model
Width	286 mm (incl. feet)	483 mm (incl. rackmounting kit)
Total depth	775 mm (with hot-plug power supply units)	770 mm (with hot-plug power supply units)
Installation depth	-----	735 mm
Height	473 mm (incl. feet)	177 mm or 4 HU

Weight

Approx. 25 - 40 kg (depending on configuration)

Ventilation clearance

At least 200 mm in front of and behind the system.

Maintenance area for the floorstand model

1.2 m on the left side. Emergency access must be assured.

Environmental conditions

Environment class 3K2 (operating) Environment class 2K2 (transport)	EN 60721 / IEC 721 part 3-3 EN 60721 / IEC 721 part 3-2
Temperature: – Operating – Transport	 10 °C .... 35 °C -25 °C .... 60 °C
Humidity (operating)	10% 85%
Dust loading class 3S2 (operating)	EN 60721 / IEC 721 part 3-3

Condensation during operation must be avoided (see Acclimatization times in table 1 on page 33)!

Noise level with standard fan and power supply units

Sound power level L_{WAd} (ISO 9296)	≤ 5.7 B (standby) ≤ 5.8 B (operating)
Sound pressure level at bystander position L_{pAm} (ISO 9296)	≤ 39 dB(A) (standby) ≤ 40 dB(A) (operating)

Noise level with redundant system fans and redundant power supply

Sound power level L_{WAd} (ISO 9296)	≤ 6.4 B (standby) ≤ 6.7 B (operating)
Sound pressure level at bystander position L_{pAm} (ISO 9296)	≤ 46 dB(A) (standby) ≤ 48 dB(A) (operating)

2 Installation Steps: Overview

This chapter contains an overview of the steps necessary to install your server. Links guide you to sections where you can find more detailed information on the individual steps:

- At first, please take notice of the safety instructions in chapter “Important Information” on page 21 and following.
- Unpack the system, check the contents of the package for visible transport damage and check whether the delivery agrees with the details in the delivery note (see section “Unpacking the Server” on page 34).
- Transport the server to the place where you want to install it
- Make sure that all necessary manuals (see “Additional server documentation” on page 6) are available; print out the PDF files if required.
- There can be additional ordered bulk components delivered with the server. For mounting refer to the original component documentation.
- Set up the floorstand model (see section “Setting up the floorstand model” on page 34) or install the rack model in the rack (see section “Installing/Removing the Rack Model” on page 37).
- Wire the server. Please take note of the section “Connecting Devices to the Server” on page 56 and the section “Instructions for Connecting/Disconnecting Cables” on page 60.
- Connect the system to the line voltage (see section “Connecting the Server to the Mains” on page 58).
- Make yourself familiar with the operating and indicator elements on the front and on the rear side of the server (see section “Controls and Displays” on page 63).

- Configure the server and install the desired operating system and applications. The following options are available:
  - Remote configuration and installation with *ServerStart:*

    The *ServerStart* Disc 1 supplied allows you to conveniently configure the server and install the operating system.

    Details on how to operate *ServerStart*, as well as some additional information, can be found in the “PRIMERGY ServerView Suite - ServerStart” manual.

    You find additional information for configuration in section “Configuration with ServerStart” on page 72.
  - Local configuration and installation with and/or without *ServerStart* (see section “Configuration with ServerStart” on page 72 and/or section “Configuration without ServerStart” on page 74).

    You will find more information on installing the server remotely or locally in the *ServerStart* manual. This manual contains the installation steps (“Quick Step Guide”). A corresponding file in PDF format is included on the *ServerBooks* DVD.

3 Important Information

In this chapter you will find essential information regarding safety when working on your server.

3.1 Safety

The following safety instructions are also provided in the “Safety notes and other important information” manual.

This device meets the relevant safety regulations for IT equipment.

If you have any questions about whether you can install the server in the intended surroundings, contact your sales outlet or our customer service team.

CAUTION!

The activities described in these instructions may only be performed by specialist technical personnel. Repairs to the server may only be carried out by authorized specialist personnel. Any unauthorized openings and improper repairs could expose the user to risks (electric shock, energy hazards, fire hazards) and could also damage the equipment. Please note that any unauthorized opening of the server will void the warranty and exempt the manufacturer from all liability.

Before starting up

CAUTION!

- During installation and before operating the device, observe the instructions on environmental conditions for your device (see section “Technical data” on page 16).
- If the server has been moved from a cold environment, condensation may form both inside and on the outside of the machine.

  Wait until the server has acclimatized to room temperature and is absolutely dry before starting it up. Material damage may be caused to the server if this requirement is not met.
- Only transport the server in the original packaging or in packaging that protects it from impacts and jolts.

Installation and operation

CAUTION!

- If the rack model is integrated into an installation that draws power from an industrial power supply network with an IEC309 connector, the power supply's fuse protection must comply with the requirements for non-industrial power supply networks for the type A connector.
- The device automatically adjusts itself to a mains voltage between 100 V und 240 V. Ensure that the local mains voltage lies within these limits.
- This device must only be connected to a properly grounded shock-proof socket using tested and approved power cables.
- Ensure that the power sockets on the device and the grounded shock-proof sockets are freely accessible.
- The On/Off button or the main power switch (if present) does not isolate the device from the mains power supply. To disconnect it completely from the mains power supply, unplug all network power plugs from the grounded shockproof sockets.

CAUTION!

- Always connect the server and the attached peripherals to the same power circuit. Otherwise you run the risk of losing data if, for example, the central processing unit is still running but a peripheral device (e.g. memory subsystem) fails during a power outage.
- Data cables must be adequately shielded.
- The EN 50173 and EN 50174-1/2 standards apply for LAN cabling. The minimum requirement is the use of a category 5 screened LAN cable for 10/100 Mbps Ethernet, or a category 5e cable for Gigabit Ethernet. The requirements from the ISO/IEC 11801 specification must also be met.
- Route the cables in such a way that they do not create a potential hazard (make sure no-one can trip over them) and that they cannot be damaged. When connecting the server, refer to the relevant instructions in this manual.
- Never connect or disconnect data transmission lines during a storm (risk of lightning strike).
- Make sure that no objects (e.g. jewelery, paperclips etc.) or liquids can get inside the server (risk of electric shock, short circuit).
- In emergencies (e.g. damaged casing, controls or cables, penetration of liquids or foreign bodies), switch off the server immediately, remove all power plugs and contact your sales outlet or customer service team.
- Proper operation of the system (in accordance with IEC 60950-1/ EN 60950-1) is only ensured if the casing is completely assembled and the rear covers for the installation slots have been fitted (electric shock, cooling, fire protection, interference suppression).

CAUTION!

- Only install system expansions that satisfy the requirements and rules governing safety and electromagnetic compatibility and those relating to telecommunication terminals. If you install other expansions, they may damage the system or violate the safety regulations. Information on which system expansions are approved for installation can be obtained from our customer service center or your sales outlet.
- The components marked with a warning notice (e.g. lightning symbol) may only be opened, removed or exchanged by authorized, qualified personnel. Exception: Hot pluggable power supply units can be replaced.
- The warranty is void if the server is damaged during installation or replacement of system expansions.
- Only set screen resolutions and refresh rates that are specified in the operating manual for the monitor. Otherwise, you may damage your monitor. If you are in any doubt, contact your sales outlet or customer service center.

Batteries

CAUTION!

- Incorrect replacement of batteries may lead to a risk of explosion. The batteries may only be replaced with identical batteries or with a type recommended by the manufacturer (see the technical manual for the system board under “Literature” on page 107).
- Do not throw batteries into the trash can. They must be disposed of in accordance with local regulations concerning special waste.
- The battery must be disposed of in accordance with local regulations concerning special waste.
- Replace the lithium battery on the system board in accordance with the instructions in the technical manual for the system board (see “Literature” on page 107).
- All batteries containing pollutants are marked with a symbol (a crossed-out garbage can). In addition, the marking is provided with the chemical symbol of the heavy metal decisive for the classification as a pollutant:

  Cd Cadmium
  Hg Mercury
  Pb Lead

Working with CDs/DVDs and CD/DVD drives

When working with devices with CD/DVD drives, these instructions must be followed.

CAUTION!

- Only use CDs/DVDs that are in perfect condition in your server's CD/DVD drive, in order to prevent data loss, equipment damage and injury.
- Check each CD/DVD for damage, cracks, breakages etc. before inserting it in the drive.

  Note that any additional labels applied may change the mechanical properties of a CD/DVD and cause imbalance.

  Damaged and imbalanced CDs/DVDs can break at high drive speeds (data loss).

  Under certain circumstances, sharp CD/DVD fragments can pierce the cover of the CD/DVD drive (equipment damage) and can fly out of the device (danger of injury, particularly to uncovered body parts such as the face or neck).

You can prevent mechanical damage and damage to the CD/DVD drive, as well as premature CD/DVD wear, by observing the following suggestions:

- Only insert CDs/DVDs in the drive when needed and remove them after use.
- Store the CDs/DVDs in suitable sleeves.
- Protect the CDs/DVDs from exposure to heat and direct sunlight.

Laser information

The CD/DVD drive complies with IEC 60825-1 laser class 1.

CAUTION!

The CD/DVD drive contains a light-emitting diode (LED), which under certain circumstances produces a laser beam stronger than laser class 1. Looking directly at this beam is dangerous.

Never remove parts of the CD/DVD drive casing!

Modules with Electrostatic-Sensitive Devices

Modules with electrostatic-sensitive devices are identified by the following sticker:

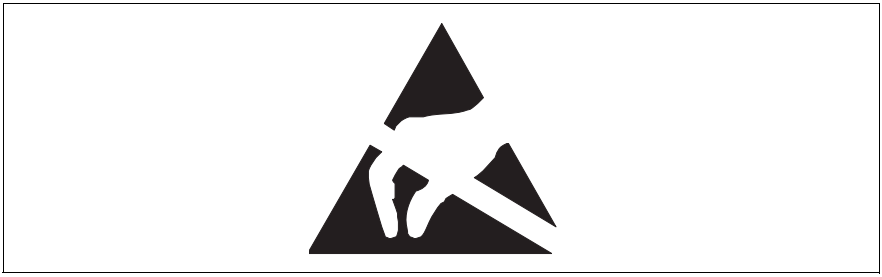

Figure 1: ESD label

When you handle components fitted with ESDs, you must always observe the following points:

- Switch off the system and remove the power plugs from the power outlets before installing or removing components with ESDs.
- You must always discharge static build-up (e.g. by touching a grounded object) before working with such components.
- Any devices or tools that are used must be free of electrostatic charge.
- Wear a suitable grounding cable that connects you to the external chassis of the system unit.
- Always hold components with ESDs at the edges or at the points marked green (touch points).
- Do not touch any connectors or conduction paths on an ESD.
- Place all the components on a pad which is free of electrostatic charge.

For a detailed description of how to handle ESD components, see the relevant European or international standards (EN 61340-5-1, ANSI/ESD S20.20).

Other important information:

- When cleaning the server, observe the relevant notes in the section “Cleaning the Server” on page 75.
- Keep this operating manual and the other documentation (such as the Technical Manual, CD) close to the device. All documentation must be included if the equipment is passed on to a third party.

3.2 CE Conformity

The system complies with the requirements of the EC directives 89/336/EEC regarding “Electromagnetic Compatibility” and 73/23/EEC “Low-Voltage Directive”. This is indicated by the CE marking (CE = Communauté Européenne).

3.3 FCC Class A Compliance Statement

If there is an FCC statement on the device, then:

The following statement applies to the products covered in this manual, unless otherwise specified herein. The statement for other products will appear in the accompanying documentation.

NOTE:

This equipment has been tested and found to comply with the limits for a “Class A” digital device, pursuant to Part 15 of the FCC rules and meets all requirements of the Canadian Interference-Causing Equipment Standard ICES-003 for digital apparatus. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in strict accordance with the instructions, may cause harmful interference to radio communications. However, there is no warranty that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Fujitsu Siemens Computers is not responsible for any radio or television interference caused by unauthorized modifications of this equipment or the substitution or attachment of connecting cables and equipment other than those specified by Fujitsu Siemens Computers. The correction of interferences caused by such unauthorized modification, substitution or attachment will be the responsibility of the user.

The use of shielded I/O cables is required when connecting this equipment to any and all optional peripheral or host devices. Failure to do so may violate FCC and ICES rules.

3.4 Transporting the Server

CAUTION!

Only transport the server in its original packaging or in packaging that protects it from impacts and jolts. Do not unpack the server until it is at its installation location.

If you need to lift or transport the server, ask other people to help you.

Never lift or carry the device by the handles on the front panel.

3.5 Notes on Installing in the Rack

CAUTION!

- **For safety reasons, at least two people are required to install the rack model because of its weight and size.**
- Never lift the server into the rack using the handles on the front panel.
- When connecting and disconnecting cables, observe the relevant instructions in the “Important Information” chapter of the technical manual for the corresponding rack. The technical manual is supplied with the corresponding rack.
- When installing the rack, make sure that the anti-tilt mechanism is correctly fitted.
- If more than one unit is withdrawn from the rack at any one time there is a danger that the rack will tilt forward.

  If several units are simultaneously removed from the rack, there is a risk that the rack could tip over.
- The rack must be connected to the power supply by an authorized specialist (electrician).
- If the rack model is integrated into an installation that draws power from an industrial power supply network with an IEC309 type connector, the power supply's fuse protection must comply with the requirements for non-industrial power supply networks for the type A connector.

3.6 Environmental Protection

Environmentally-friendly product design and development

This product has been designed in accordance with the Fujitsu Siemens Computers standard for “environmentally friendly product design and development”. This means that key factors such as durability, selection and labeling of materials, emissions, packaging, ease of dismantling and recycling have been taken into account.

This saves resources and thus reduces the harm done to the environment.

Energy-saving information

Devices that do not need to be constantly switched on should be switched off until they are needed as well as during long breaks and after completion of work.

Packaging information

Do not throw away the packaging. You may need it later for transporting the system. If possible, the equipment should only be transported in its original packaging.

Information on handling consumables

Please dispose of printer consumables and batteries in accordance with the applicable national regulations.

In accordance with EU directives, batteries must not be disposed of with unsorted domestic waste. They can be returned free of charge to the manufacturer, dealer or an authorized agent for recycling or disposal.

All batteries containing pollutants are marked with a symbol (a crossed-out garbage can). They are also marked with the chemical symbol for the heavy metal that causes them to be categorized as containing pollutants:

Cd Cadmium
Hg Mercury
Pb Lead

Labels on plastic casing parts

Please avoid sticking your own labels on plastic parts wherever possible, since this makes it difficult to recycle them.

Returns, recycling and disposal

The device must not be disposed of with domestic waste. This device is labeled in compliance with European directive 2002/96/EC on waste electrical and electronic equipment (WEEE). This directive sets the framework for returning and recycling used equipment and is valid across the EU. When returning your used device, please use the return and collection systems available to you. Further information can be found at *www.fujitsu-siemens.com/recycling*.

Details regarding the return and recycling of devices and consumables within Europe can also be found in the “Returning used devices” manual, via your local Fujitsu Siemens Computers branch or from our recycling center in Paderborn:

Fujitsu Siemens Computers
Recycling Center
D-33106 Paderborn

Tel. +49 5251 8 18010

Fax +49 5251 8 18015

4 Hardware Installation

CAUTION!

Please note the safety instructions in chapter “Important Information” on page 21.

Do not expose the server to extreme environmental conditions (see section “Technical data” on page 17). Protect it from dust, humidity, and heat.

The HDD modules installed in the server may not be exposed to a temperature shock (see section “Handling Hard Disk Drives/HDD Modules” on page 89).

In order to avoid the formation of condensation inside or on the outside of the hard disk drives the server must be acclimatized in its operating environment for an acclimatization time (table 1).

Temperature difference (°C)	Minimum acclimatization time (hours)
5	3
10	5
15	7
20	8
25	9
30	10

Table 1: Acclimatization time

The temperature difference in table 1 represents the difference between the operating temperature and the outside, transport or storage temperature.

4.1 Unpacking the Server

CAUTION!

Please note the safety instructions in chapter “Important Information” on page 21.

If you need to lift or transport the server, ask other people to help you.

Do not unpack the server until it is at its installation location.

You should retain the original server packaging in case further transportation is necessary.

- ► Unpack all individual parts.
- ► Check the delivery for any damage during transport.
- ► Check whether the items delivered match the details on the delivery note.

The identification rating plate is located on the rear area on the server.

Notify your supplier immediately should you discover that the delivery does not correspond to the delivery receipt.

4.2 Setting up the floorstand model

If you are not installing a PRIMERGY TX200 S3 floorstand model, skip this section and continue reading at section section “Installing/Removing the Rack Model” on page 37.

CAUTION!

Please note the safety instructions in chapter “Important Information” on page 21.

- ► Transport the server to the place where you want to install it
- ► Unpack the server (see section “Unpacking the Server”).

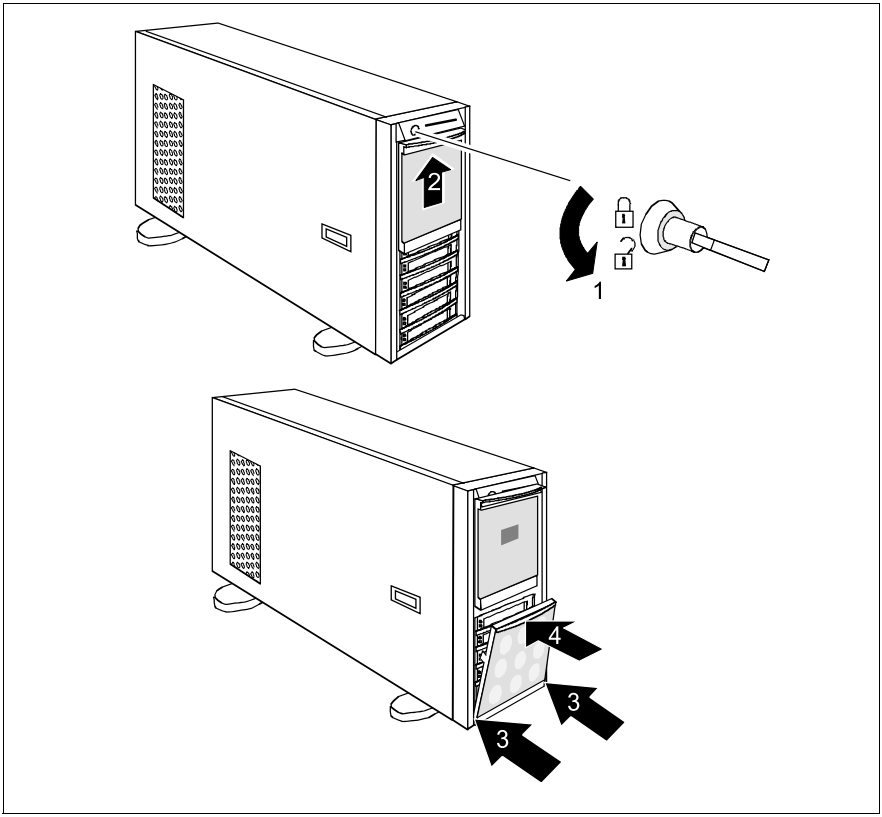

Figure 2: Fitting the HDD cover

- ► Unlock the server (1) and remove the key (figure 2 on page 35).
- ► Push the drive cover (2) up as far as it will go until it locks in place (about 0.5 cm above the closed position).
- ► Engage the guide pins on the left and right of the HDD cover in the recesses (3) provided.
- ► Press the top end (4) of the HDD cover in the direction of the arrow until it engages.

► Install the server.

CAUTION!

– The device must be protected from direct sunlight.
– The essential minimum clearance for servicing must be maintained (see “Maintenance area for the floorstand model” on page 17.
– Access to the rear of the server must be assured so that other devices (e.g. memory subsystems) can be connected.
– A clearance of at least 200 mm must be maintained in front of and behind the system to ensure proper ventilation.
– The mains plug must be accessible easily and safely.

► Wire the server. Please take note of the section “Connecting Devices to the Server” on page 56 and the section “Instructions for Connecting/Disconnecting Cables” on page 60.

► Connect the system to the line voltage (see section “Connecting the Server to the Mains” on page 58).

4.3 Installing/Removing the Rack Model

CAUTION!

- Please observe the safety notes and notes on mounting into the rack in chapter “Important Information” on page 21.
- Several people are needed to install / remove the server in the rack.
- The rack can tip over when more than one slide-in module is pulled out.
- The server may not occupy the top height unit of the rack (42 HU Classic Rack, 38 HU/42HU PRIMECENTER Rack and/or DataCenter Rack), as otherwise no board and/or system fan can be replaced even with the slide-in module pulled out completely.

Rack requirements

The rack systems produced by Fujitsu Siemens Computers (PRIMECENTER Rack; DataCenter Rack and 19-Inch (Classic) Rack) fully support the installation of PRIMERGY server systems. Installation in most current rack systems from other manufacturers (3rd party racks) is also supported.

To accommodate the ventilation concept and ensure proper ventilation, any unused areas in the rack must be sealed using dummy covers.

The power is supplied via the multiple socket outlets fitted in the rack.

PRIMECENTER Rack

– Telescopic rails screwed to the front

  The rails have a linear alignment feature to ensure that they can be adjusted to different rack depths.

– Enhanced cable management in the lateral rack area.

DataCenter Rack

– Telescopic rails screwed to the front

  The rails have a linear alignment feature to ensure that they can be adjusted to different rack depths.

– Enhanced cable management in the lateral rack area.

19" (Classic) Rack

– Telescopic rails screwed to the sides.
– Cable management using an articulated cable carrier.

The mounting of the rails in the different racks is described in the next sections.

Installation of the cable management is described in detail in the Technical Manual for the respective rack.

For rack systems from other manufacturers:

3rd party rack

Certain general conditions must be met:

– Installation dimensions (see the dimensions shown in figure 3 on page 40).

1	Front of rack
2	Rear of rack
A	Rack depth (comparison PRIMECENTER Rack 940/1000 mm)
B	Rack width (comparison PRIMECENTER Rack 700 mm)
C	Clearance for 19" installation level
C1	Front 19" installation level
C2	Rear 19" installation level
D	Cable routing area (cable area depth) and ventilation
E	Space for front panel and ventilation
F	Space for right and left support systems
P	PRIMERGY rack installation depth
a1	Front left support upright
a2	Front right support upright
b1	Rear left support upright
b2	Rear right support upright

– You must ensure that the safety mechanisms on the server, e.g. stoppers or retaining systems, are functioning correctly.

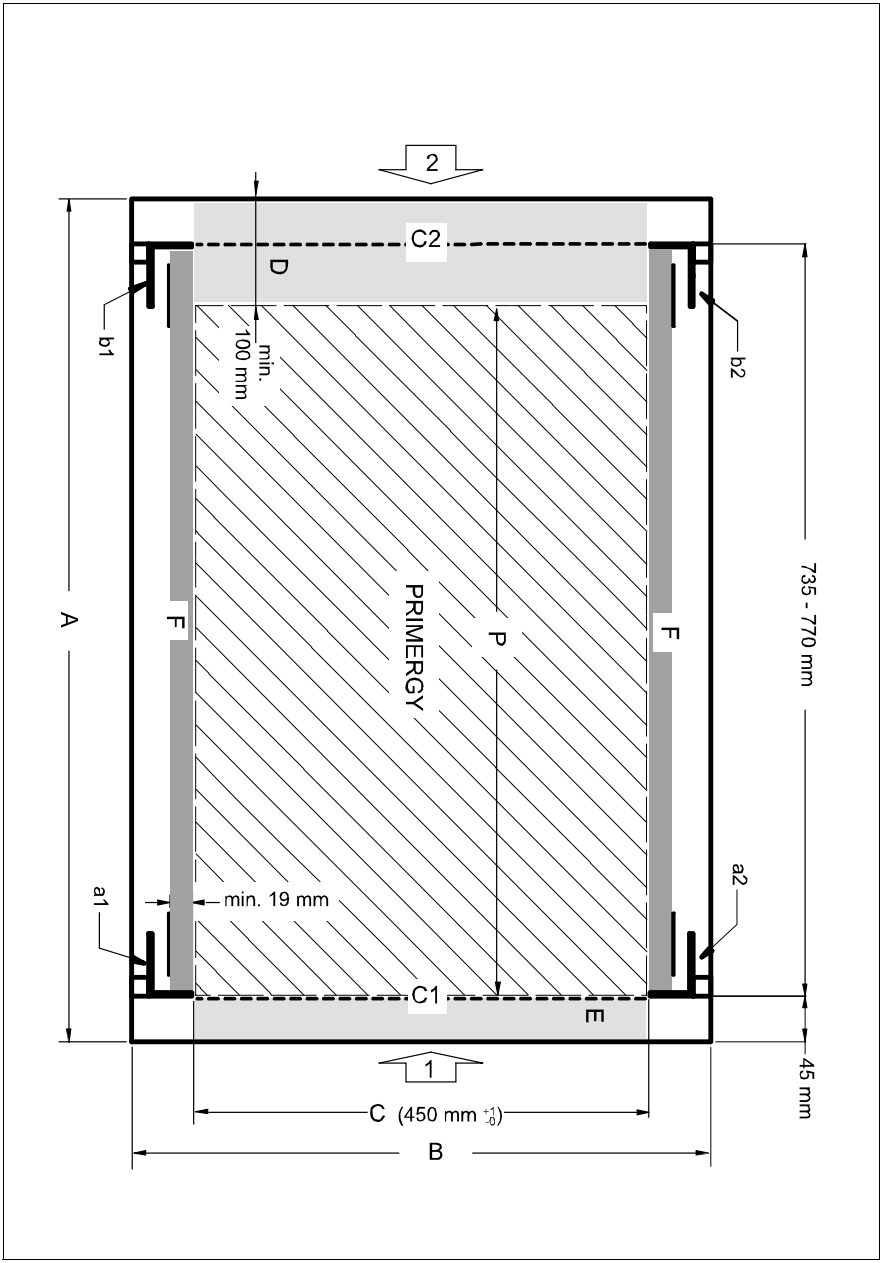

Figure 3: Mechanical requirements

– The shape of the rack support uprights must ensure that the rails can be bolted to the front.

– Telescopic rails screwed to the front

  The rails have a linear alignment feature to ensure that they can be adjusted to different rack depths (710 - 785 mm).

– No support of the cable management (delivered with the mounting kit).

– Climatic conditions.
  An unobstructed air intake in the rack front and air discharge in the rear cover of the rack are essential for ventilation of the installed server.

  In principle the ventilation concept plans that the necessary cooling is reached by the horizontal self-ventilation of the installed devices (air flow from the front to the rear).

– Power supply:
  For installation in 3rd party racks it must be ensured that the appropriate socket strips are present.

4.3.1 Mounting in the PRIMECENTER/DataCenter Rack

For installation in the PRIMECENTER/DataCenter Rack, the following parts are required:

– Support bracket
– One support system on the left and one on the right (mounted)
– M5 centering fixtures (screws with integrated plugwashers)

– The descriptions and figures in this section refer to the current variable support.

– You can find general information regarding server installation in the rack in the technical manual for the appropriate rack.

When mounting the left telescopic rail in the corresponding rack, the supplied support bracket must first be mounted flush with the underside of the device on the rear left support upright.

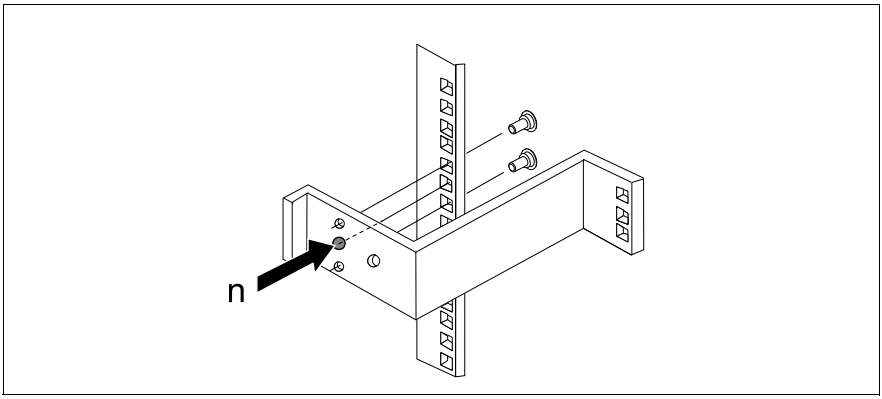

Figure 4: Fitting the support bracket

► Position the support bracket at the corresponding height on the rear left support upright, (place knob(s) in corresponding hole(s) and secure it with the two supplied M5 centering fixtures.

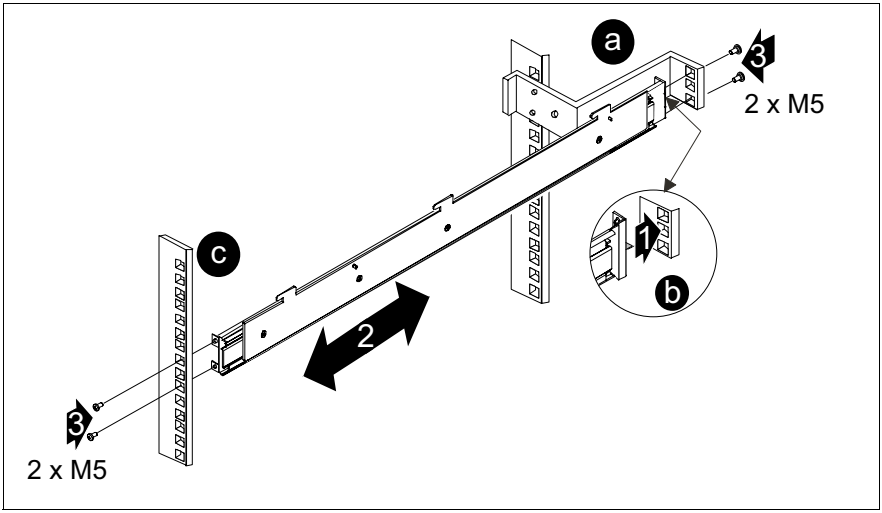

Figure 5: Fit the left telescopic rail in the PRIMECENTER/DataCenter Rack

- ► Place the left support system (1) in the support bracket (a) with lug (b) in the middle square catch.
- ► Clamp the left-hand rail (2) between the front left support upright (c) and the support bracket (a) by pressing the rail together, positioning the rail on the front support upright, and releasing them again. The rail automatically adjusts to the rack depth.
- ► Attach the left support system with two M5 centering fixtures (3) each on the left front support upright (c) and the rear support bracket (a).
- ► Repeat the above steps with the right-hand support system (it is secured to the front and rear right support uprights).
- ► Fit the cage nuts for securing the server in the corresponding catch on the right and left support uprights.
- ► Fit the PRIMECENTER/DataCenter Rack cable management as described in the technical manual for the rack.
- ► Mount the server (see section “Inserting the server” on page 50).
- ► Route the cables once the server has been inserted, as described in the Technical Manual for the rack.

4.3.2 Installation in Classic Rack

A special conversion kit (S26361-F1331-L200 without cable arm or S26361-F1331-L300 with cable arm) is needed for fitting in the Classic (19 inch 42/23 HU) rack:

– One support system on the left and one on the right (mounted)
– Articulated cable guide
– Protective hose for fiber channel fiber optic cable

General information about rack installation can be found in the Technical Manual for the Classic (19 inch) rack and in the leaflet that accompanies the conversion kit.

► Mark the position of the attachment points for the telescopic rails and for the server (front panel) on the support uprights (four height units).

► Place the spring nuts for fixing the adapters in the groove on the support uprights at the marked fixing points.

► Place the M5 spring nuts for securing the server in the groove on the front faces of the front support uprights.

► Adjust the position of the nuts in the groove until they engage at the correct position.

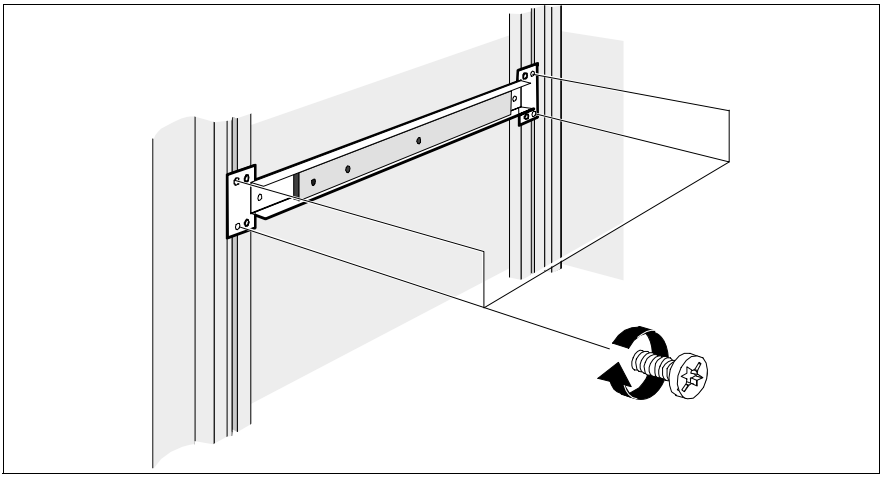

Figure 6: Mounting the telescopic rail in the Classic Rack

► Secure the right and left adapters to the support uprights in the rack with two (M5) screws each.

Note that the guide nubs on the telescopic rails must fit into the holes in the support uprights next to the spring nuts.

► Secure the left and right telescopic rails to the adapters in the rack with two (M5) screws and nuts each.

If you do not have enough room, slide the neighboring server forwards (see also the installation instructions for the conversion kit).

► Mount the server (see section “Inserting the server” on page 50).

Fitting the Articulated Cable Guide (Cable Management)

CAUTION!

In contrast to the instructions in the Technical Manual for the 19" (Classic) Rack the articulated cable guide is only secured to the support upright - **not to the server**.

► To secure the articulated cable guide, place two spring nuts in the groove in the rear right support upright. The installation height must correspond to the height of the connecting cables on the server.

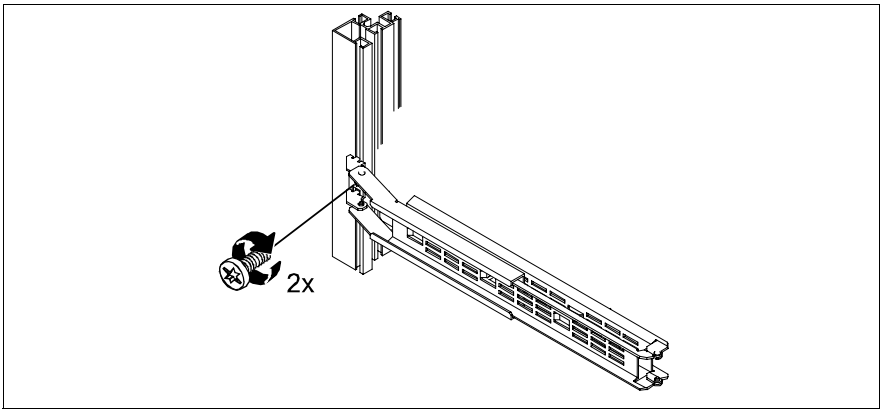

Figure 7: Fitting the articulated cable guide

► Secure the articulated cable guide to the rear right support upright with two fixing screws.

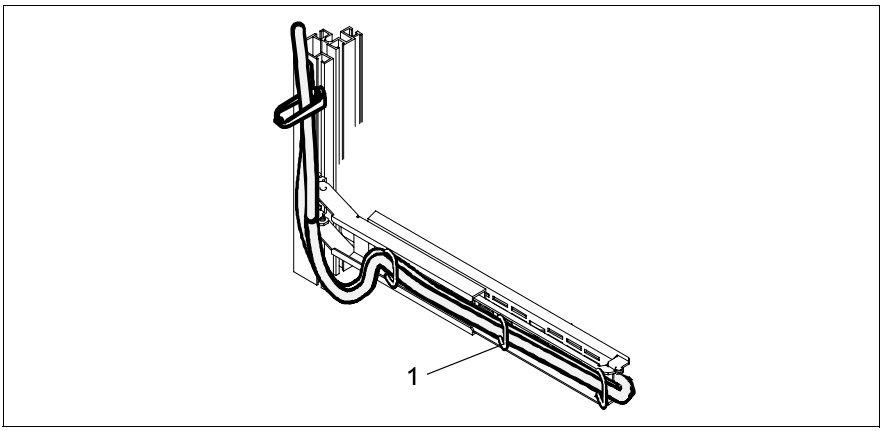

Figure 8: Routing the cables on the articulated cable guide

- Route the cables as shown in the figure and secure them to the articulated cable carrier with cable ties (1).

CAUTION!

To prevent the Fibre Channel fiber optic cables from being damaged, they are sheathed in a protective tube (see next section “Routing the fiber channel fiber optic cable”).

Securing the cables to the articulated cable guide ensures that the articulated cable guide extends accordingly when removing the server.

The server can then be pulled out later without further preparations.

Routing the fiber channel fiber optic cable

The protective hose (length approx. 1m) supplied with the mounting kit has a separable design.

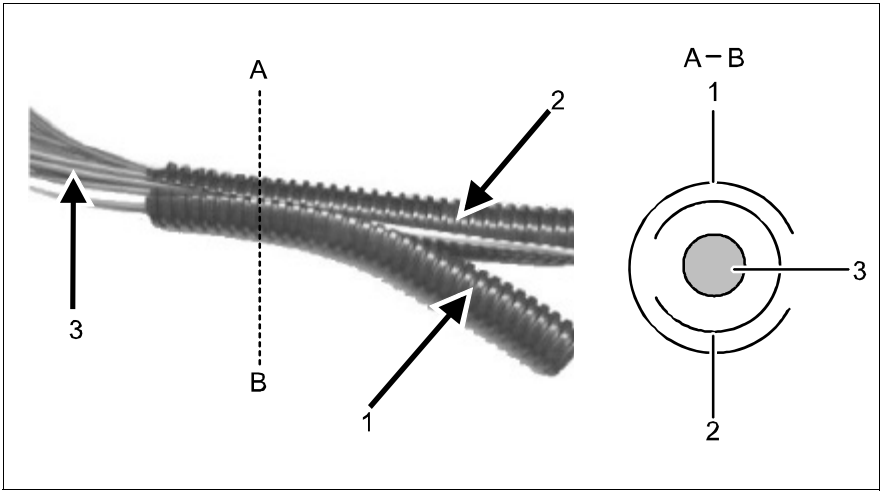

Figure 9: Fitting the protective hose

- ► Separate the outer protective sheath (1) from the inner sheath.
- ► Carefully place the fiber optic cable (3) in the inner protective sheath (2).
- ► Push the outer protective sheath (1) over the inner protective sheath.

CAUTION!

The sheath openings must be arranged in an opposing direction as shown in the sectional view A-B.

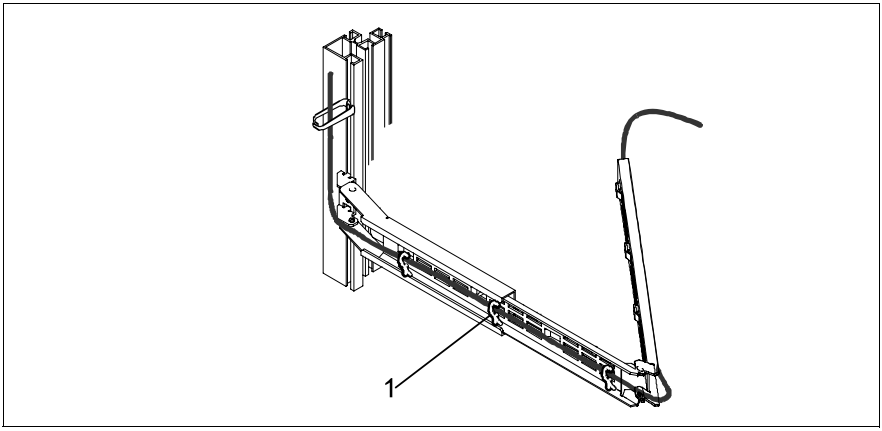

Figure 10: Routing the fiber optic cable with protective hose

► Route the fibre channel optical waveguide cable on the articulated cable carrier as shown in the figure and secure them with cable ties (1).

CAUTION!

Make sure that the radii are designed in such a way that no damage can occur to the protected fiber optic cable with the articulated cable guide extended or retracted.

4.3.3 Installation in 3rd Party Racks

The procedure for installing in 3rd party racks is basically as described in “Mounting in the PRIMECENTER/DataCenter Rack” on page 42 (the support bracket and cable management are not installed). The following parts are required:

– one support system on the left and one on the right (mounted)
– possibly an articulated cable guide
– possibly protective hose for fiber channel fiber optic cable

► Refer to the manual from the rack manufacturer for details of the mechanical installation and the climatic conditions.

CAUTION!

For installation in 3rd party racks, it must be ensured that an air flow from the front to the back of the rack is guaranteed.

Sometimes a number of parts of the delivered mounting kit cannot be used because original parts of the 3rd-Party Rack are to be used.

- ► Mount the server (see section “Inserting the server”).
- ► Route the cables as described in the original rack manual.

4.3.4 Inserting the server

CAUTION!

At least two people are needed to position the server in the rack.

PRIMERCENTER/DataCenter and 3rd Party Rack

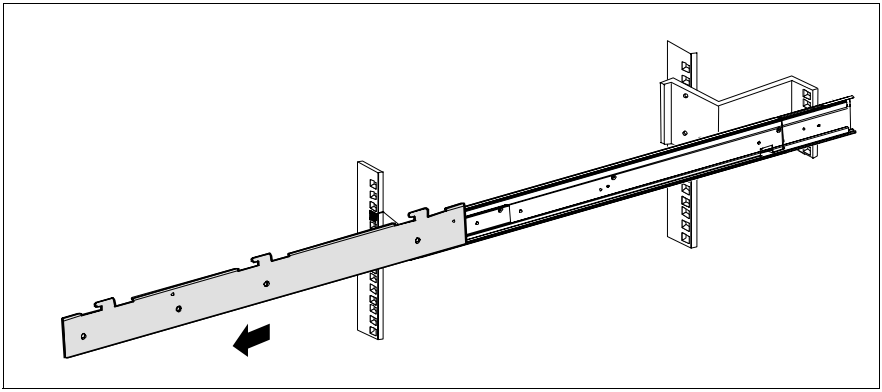

Figure 11: Extending the telescopic rail

- ► Pull the mounted support systems forwards as far as they will go until they engage. The telescopic rails must not be able to move backwards any more.

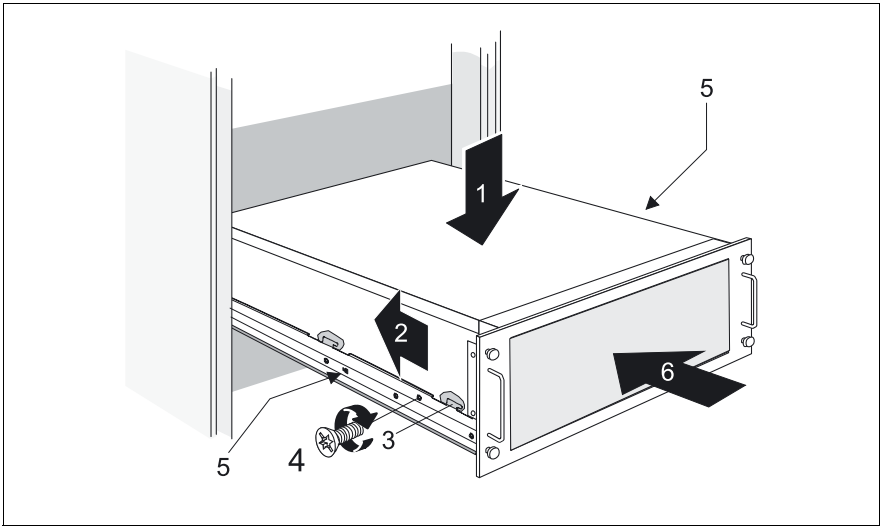

Figure 12: Inserting the server

► Lift the server onto the left and right system support rods (1).

CAUTION!

Hold the server on both sides when lifting it onto the support system, not just by the handles on the front panel!

► Slide the server slightly in the direction of the arrow (2) until the hooks (3) engage. When doing this, ensure that the telescopic rails are kept in a locked position.

► Screw the system support rods (left and right) to both sides of the server with one M3x6 screw on each side (4).

The following steps can then be carried out by one person only.

► Press in the safety springs (5) on both telescope bars and slide the server as far as it will go into the rack (6).

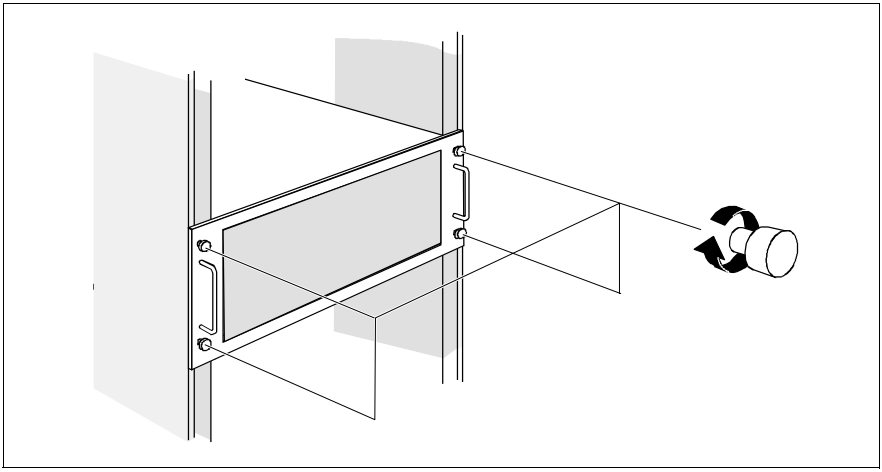

Figure 13: Securing the server

- ► Fasten the server using four knurled screws.
- ► Route the cables once the server has been inserted, as described in the Technical Manual for the rack.

To remove the server, follow this procedure in reverse.

Classic Rack

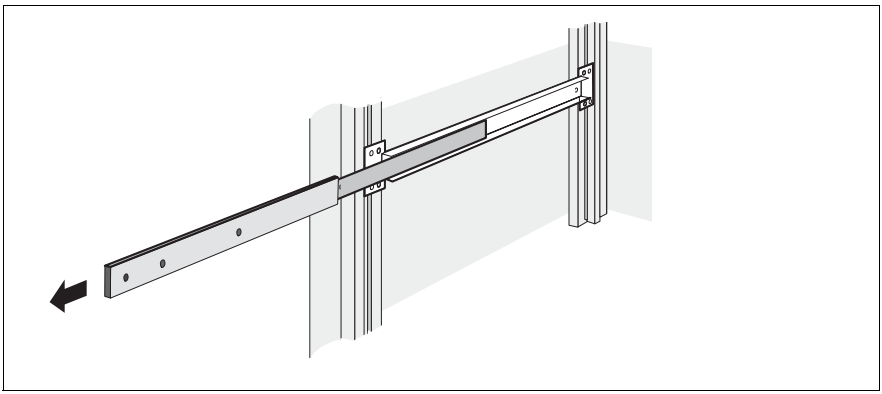

Figure 14: Extending the telescopic rail

► Pull the mounted support systems forwards as far as they will go until they engage. The telescopic rails must not be able to move backwards any more.

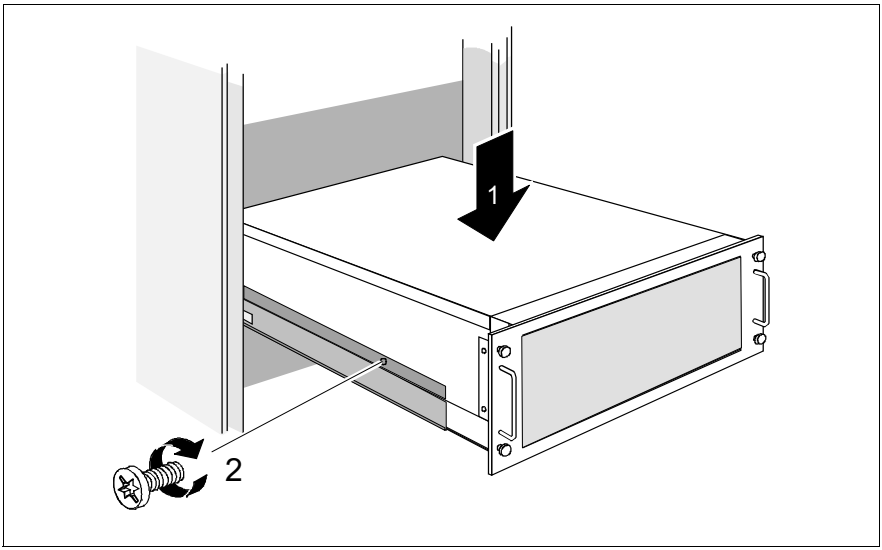

Figure 15: Installing the server (classic rack)

► Lift the server onto the left and right system support rods (1).

CAUTION!

Hold the server on both sides when lifting it onto the support system, not just by the handles on the front panel!

► Position the server so that the holes of the telescope bars are in line with those of the server. When doing this, ensure that the telescopic rails are kept in a locked position.

► Screw the system support rods (left and right) to both sides of the server with one M3x6 screw on each side (2).

The following steps can then be carried out by one person only.

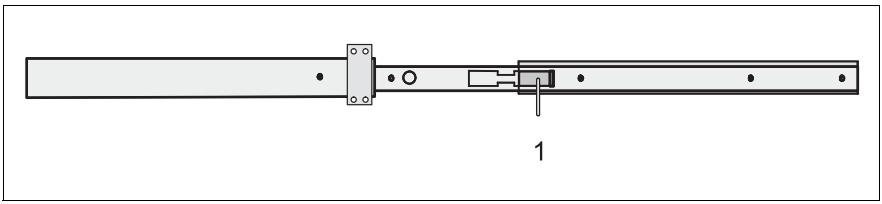

Figure 16: Telescope Bar with Safety Spring

► Press in the safety springs (1) on both telescope bars.

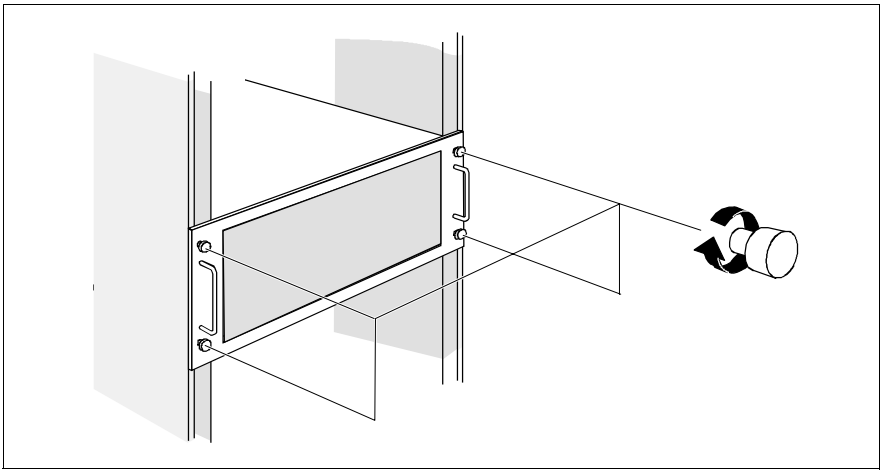

Figure 17: Securing the server

► Slide the server into the rack.

► Fasten the server using four knurled screws.

► Route the cables once the server has been inserted, as described in the Technical Manual for the classic rack.

To remove the server, follow this procedure in reverse.

4.4 Connecting Devices to the Server

The ports for external devices are on the rear of the server. Which additional ports are available on your server depends on the PCI boards installed.

The standard ports (figure 18) are marked with symbols, and some are colour-coded.

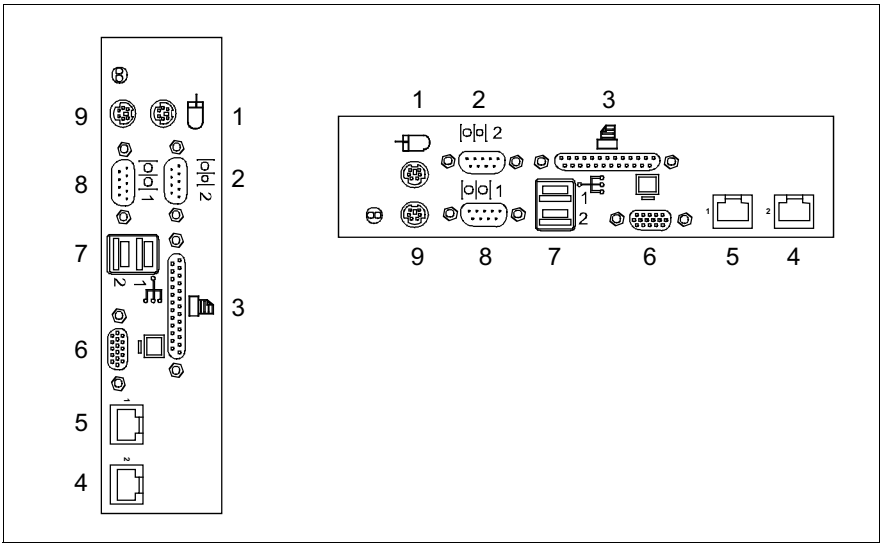

Figure 18: Connector panel on the back (floorstand and rack models)

1	Mouse port (PS/2) (green)	6	Monitor port (VGA) (blue)
2	Serial port COM2 (turquoise)	7	USB port 1 and 2 (black)
3	Parallel port (burgundy) (optional)	8	Serial port COM1 (turquoise) (alternative BMC interface)
4	LAN port 2	9	Keyboard port (PS/2) (purple)
5	LAN port 1 (Service LAN)		

The corresponding displays are explained in section “Rear of Server” on page 67 .

Some of the devices connected require special software (e.g. drivers) (see documentation for the connected device).

- Connect up the devices.

You can find an additional USB port on the front of the server (see figure 22 on page 63).

Connecting the keyboard, mouse and monitor

- Connect the monitor, the keyboard and mouse to the standard ports of the server (see figure 18 on page 56).
- Connect the power cable of the monitor to a grounded mains outlet of the in-house mains and/or into the mains socket strip of the rack.

CAUTION!

The rated current for the monitor can be found on the technical data label on the monitor or in the operating manual for the monitor.

4.5 Connecting the Server to the Mains

With the basic configuration, the server has a fixed, wide-range power supply unit.

As an option, this power supply unit can be replaced with a hot-pluggable power supply unit. A second hot pluggable power supply unit can be added to achieve a redundant power supply. If a defect occurs in one power supply unit, the respective other power supply unit ensures unimpaired further operation.

CAUTION!

The server automatically adjusts itself to a voltage in the range of 100 V - 240 V. Make sure that your local mains voltage is within this range.

If the server has two hot pluggable power supply units, the server can be connected to the mains with phase redundancy.

In this case the two power supply units are directly connected either to two different phases or to two different power circuits of the in-house mains.

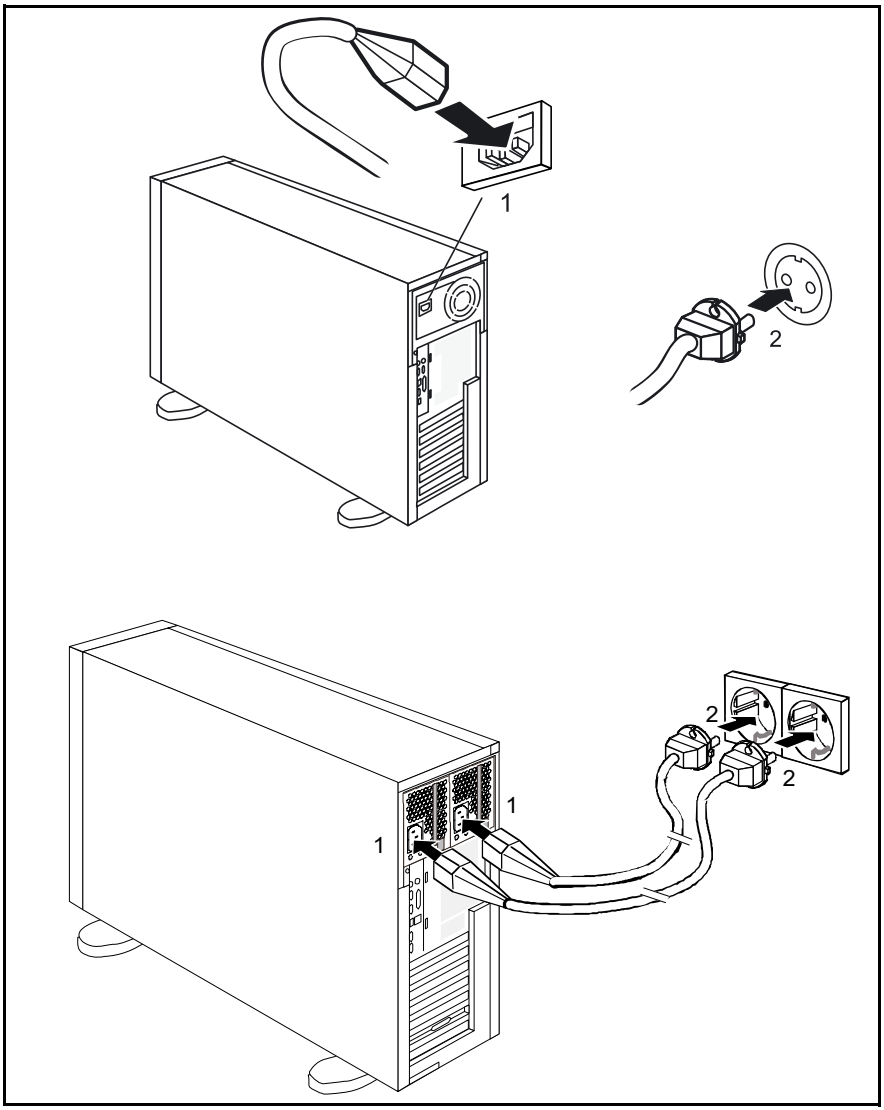

Figure 19: Connecting the Server to the Mains

- Connect the insulated connector of the power cable to power supply unit of the server (1), and the power plug to a grounded mains outlet (2) of the in-house mains and/or into the mains socket strip of the rack (see Technical Manual of the rack).

4.6 Instructions for Connecting/Disconnecting Cables

CAUTION!

Make sure you read the documentation for the external devices before connecting them.

Do not connect or disconnect data cables during a thunderstorm.

When removing a cable, always hold it by the plug. Never unplug a cable by pulling at the cable itself.

Connect and disconnect the cables in the order described below.

Connecting cables

- ► Turn off all power and equipment switches.
- ► Disconnect all power plugs from the grounded shockproof sockets.
- ► Plug all cables into the server and peripherals.
- ► Plug all data communication cables into the utility sockets.
- ► Plug all power cables into the grounded shockproof sockets.

Disconnecting cables

- ► Turn off all power and equipment switches.
- ► Disconnect all power plugs from the grounded shockproof sockets.
- ► Unplug all data communication cables from the utility sockets.
- ► Disconnect the relevant cables from the server and all the peripherals.

5 Starting Up and Operation

CAUTION!

Please note the safety instructions in chapter “Important Information” on page 21.

5.1 Locking and Unlocking the Floorstand Model

Ensure access to the accessible drives/HDD box

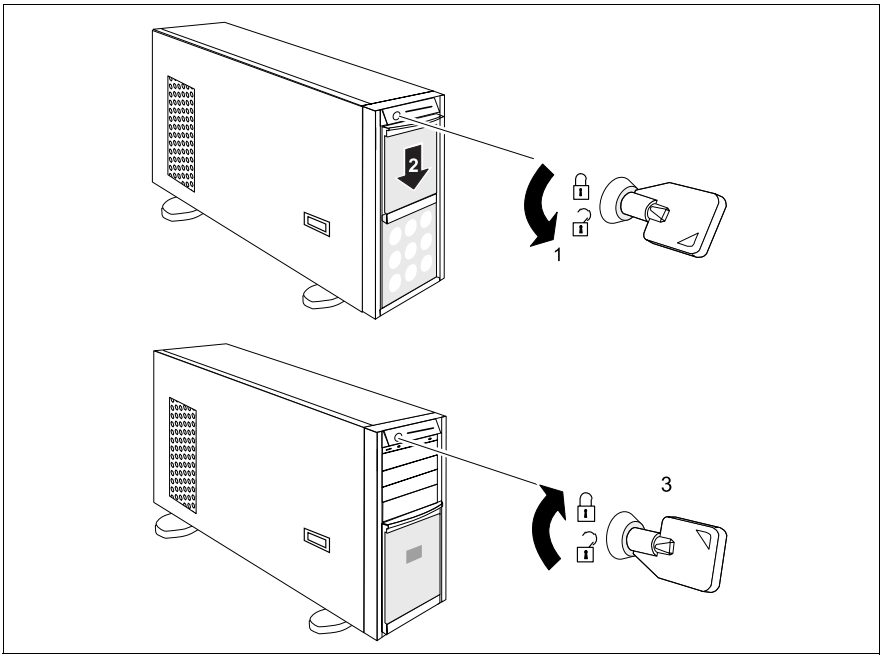

Figure 20: Access to the accessible drives/HDD box

- ► Unlock the server (1).
- ► Slide the drive cover downwards (2).

To prevent access to the HDD modules, the server can be locked again (3). The drive cover cannot be pushed into the top position and the hard disk drive cover cannot be removed (see figure 21 on page 62).

Enabling access to the HDD modules

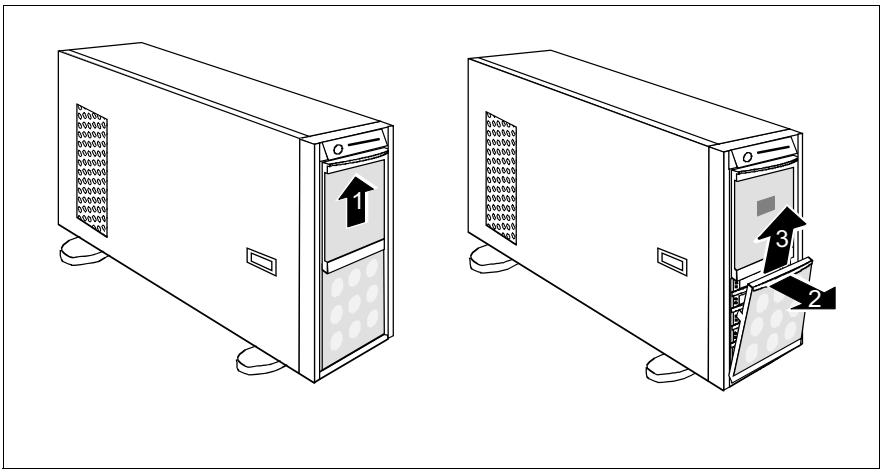

Figure 21: Access to the HDD modules

- ► Unlock the server and remove the key.
- ► Slide up the drive cover as far as possible (1).
- ► Remove the HDD cover (2 + 3).

Remount the HDD cover and connect the server in the reverse order.

5.2 Controls and Displays

5.2.1 Front of server

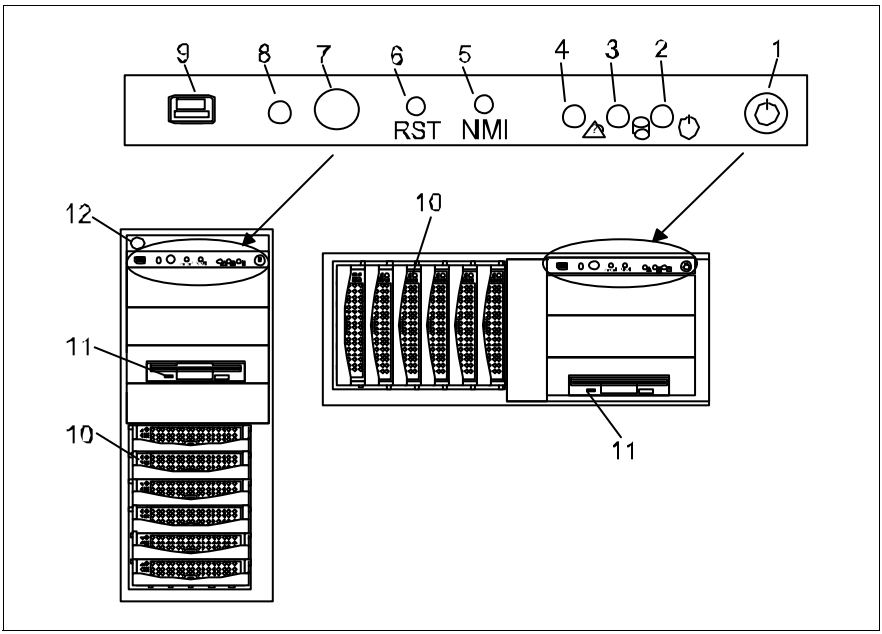

Figure 22: Front of server

1	ON/OFF button	7	ID button
2	Power on indicator	8	ID indicator
3	Drive access indicator	9	USB connection
4	Global error indicator	10	Hard disk drive control indicators (figure 23)
5	NMI button	11	Floppy disk drive access indicator
6	Reset button	12	Key lock (floorstand model only)

Controls

Lock

The server can be locked to prevent access to the drives.

Lock open: drives can be accessed.

Lock closed: drives cannot be accessed

ON/OFF button

When the system is switched OFF, it can be switched ON again by pressing the ON/OFF button. When the system is operating, pressing the ON/OFF button will switch OFF the system.

The ON/OFF button does not disconnect the server from the mains. To completely disconnect it from the mains voltage, switch off the main switch (if there is one on the standard power supply unit) and unplug the power plug(s).

NMI NMI button

CAUTION!

Do not press! Risk of loss of data!
The NMI button may only be used by Service.

RST Reset button

Pressing the reset button reboots the system.

CAUTION!

Risk of loss of data!

ID ID button

Lights up (blue) on the front and on the rear of the server when the ID button is pressed. The two ID indicators are synchronized.

Indicators on the control panel

Power-on indicator (dual color)

Lights green when the server is switched ON.

Lights orange when the server is switched OFF, but mains voltage is present (standby mode).

Drive access indicator (green)

An internal SCSI drive (HDD or backup drive) is being accessed.

Global Error indicator

Does not light when the system is ok. No service incident or critical event has occurred.

Flashes orange when a critical event has occurred. Users can check BIOS Setup, system- and eventlog or via *ServerView* for event details.

Lights up orange when a prefailure event has been detected. Users can check system- and eventlog or via *ServerView* for event details.

If the event is still acute after a power failure, the indicator is activated after the restart.

ID ID indicator (blue)

Lights up blue when the system has been selected by pressing the ID button. To deactivate, press the button again.

The ID indicator can also be activated via *ServerView* and its status reported to *ServerView*.

Indicators on the drives

CD-ROM/DVD-ROM indicator (optional)

Lights up green when the storage medium is being accessed.

Floppy disk drive indicator

Lights up green when the storage medium is being accessed.

Hard disk drive control indicators

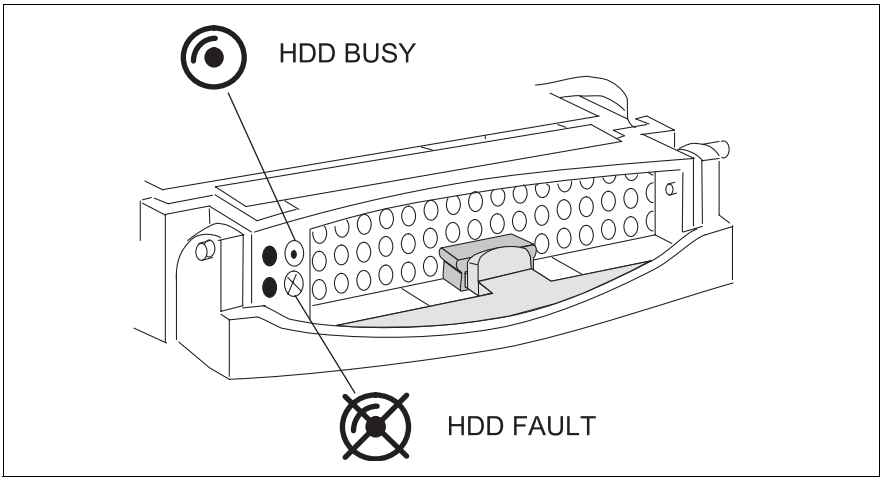

Figure 23: HDD module: Indicators

LED green	HDD BUSY – Lights: HDD in active phase – Does not light: HDD inactive (drive inactive)
LED orange	HDD FAULT (in conjunction with a disk array controller) – Not lit: No HDD error – Lit: HDD Faulty or Rebuild Stopped (drive defective/needs replacing, a rebuild process was stopped or the HDD module is not correctly inserted) – Slow flashing: HDD Rebuild (the data is being restored after changing a hard disk drive) – Fast flashing: HDD Identify – Four fast blinks/pause: HDD Predicted Fault – Two fast flashes/pause: HDD Hot Spare (Hot spare drive active. The corresponding drive has failed).

5.2.2 Rear of Server

Indicators on connection panel

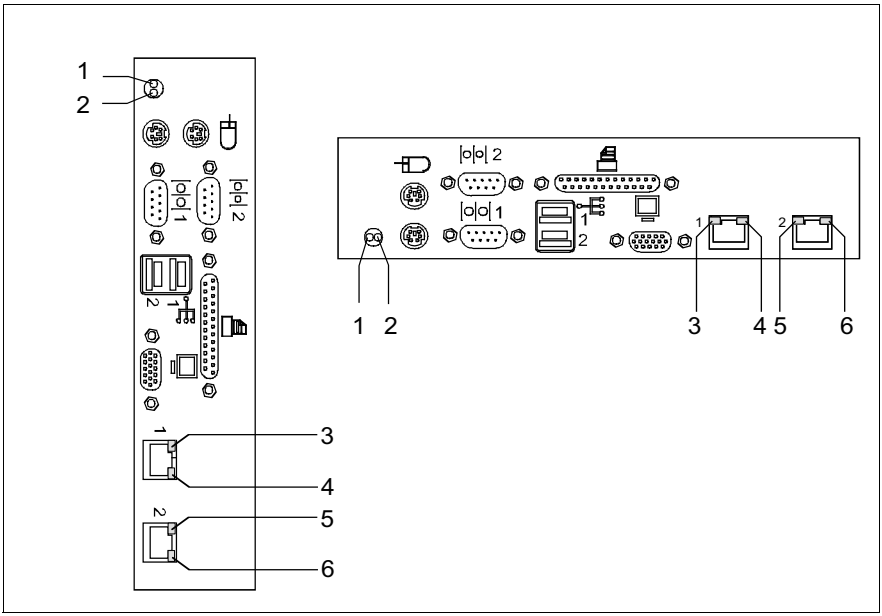

Figure 24: Indicators on connection panel

1	Global Error indicator (orange) Does not light when the system is ok. No service incident or critical event has occurred. Flashes orange when a critical event has occurred. Users can check BIOS Setup, system- and eventlog or via *ServerView* for event details. Lights up orange when a prefailure event has been detected. Users can check system- and eventlog or via *ServerView* for event details. If the event is still acute after a power failure, the indicator is activated after the restart.

2	ID indicator (blue) ID indicators on the front and rear of the server light up when the ID button is pressed. The two ID indicators are synchronized. Lights up blue when the system has been selected by pressing the ID button. To deactivate, press the button again. The ID indicator can also be activated via ServerView and its status reported to ServerView.
3	LAN transfer rate indicator (service LAN) Lights green for a LAN transfer rate of 100 Mbps. Does not light up for a LAN transfer rate of 10 Mbps.
4	LAN link/active indicator (service LAN) Lights green if a LAN link exists. Does not light up if a LAN link does not exist. Flashes green when a LAN transfer occurs.
5	LAN transfer rate indicator (standard LAN) Lights yellow for a LAN transfer rate of 1 Gbps. Lights green for a LAN transfer rate of 100 Mbps. Does not light up for a LAN transfer rate of 10 Mbps.
6	LAN link/Active indicator (standard LAN) Lights green if a LAN link exists. Does not light up if a LAN link does not exist. Flashes green when a LAN transfer occurs.

Indicators on hot plug power supply unit

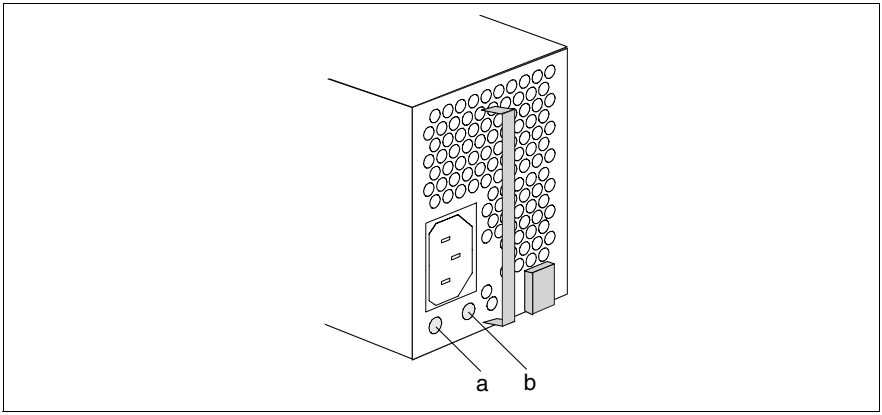

Figure 25: Hot pluggable power supply unit

LED		Color	State	Meaning
a	Operation	orange	lights	Mains voltage Voltage OK (standby mode)
		green	lights	Server operating
b	Diagnosis	orange	lights	Anticipated PSU fault
			Flashing	PSU failure

5.3 Switching the Server On and Off

CAUTION!

If after switching ON the server there is nothing but flickering stripes on the screen, switch the server OFF immediately (see chapter “Trouble-shooting and Tips” on page 79).

The power button does not disconnect the server from the mains voltage. To completely disconnect it from the mains voltage, remove the power plug(s) from the socket(s).

Switching the server on

– **Starting up for the first time:**

The Power on indicator (position 2 in figure 22 on page 63) lights orange (standby mode).

- ► Press the ON/OFF button (position 1 in figure 22 on page 63).
- ► Insert the *ServerStart* Disc 1 and/or an installation disk in the corresponding drive.
- ► Follow the on-screen instructions (see also section “Configuration with ServerStart” on page 72 or section “Configuration without ServerStart” on page 74).

– **System already installed**:

The Power on indicator (position 2 in figure 22 on page 63) lights orange (standby mode).

- ► Press the ON/OFF button (position 1 in figure 22 on page 63).

  The server is switched on, performs a system test and boots the operating system.

Switching the server OFF

Power on indicator (position 2 in figure 22 on page 63) lights green.

► Shut down the operating system properly.

The server is switched off automatically and goes into standby mode. The power on indicator lights up orange.

If the server does not switch off immediately, hold the ON/OFF button down for at least four seconds or send a corresponding control signal.

Other on/off options

In addition to the ON/OFF button, the server can be switched ON and OFF in the following ways:

– **Specified switch on time / switch off time**

  The server is switched ON or OFF at a time specified in the *ServerView* program

– **Ring indicator**

  The server is switched on by an internal or external modem.

– **Wakeup on LAN (WOL)**

  The server is switched on by a command via the LAN (Magic Package).

– **After power failure**

  The server automatically reboots following a power failure (depending of the settings in the BIOS).

5.4 Configuring the Server

This section contains information about configuring the server and installing the operating system.

Make sure that the energy saving functions are disabled in the *BIOS Setup* (see “Literature” on page 107) during server operation.

5.4.1 Configuration with ServerStart

Configuring the Onboard SATA Controller

The server is equipped with an onboard SATA controller, which supports RAID levels 0 and 1 with LSI SATA Software RAID.

The controller has its own configuration utility. More detailed information may be found in the “Embedded MegaRAID Software User’s Guide” manual (on the *ServerBooks* DVD under “Controllers”).

The *ServerStart* Disc 1 supplied allows you to conveniently configure the server and install the operating system. The menu-assisted configuration includes the server configuration with *SCU* and the RAID controller configuration.

Details of how to operate *ServerStart* and further information can be found in the "PRIMERGY ServerView Suite - ServerStart" manual (see “Literature” on page 107).

Configuring the PCI Ultra320 SCSI RAID Controller

The server is equipped with a 2-channel PCI Ultra320 SCSI RAID controller.

The controller has its own configuration utility. More detailed information may be found in the “MegaRAID Configuration Software User’s Guide” manual (on the *ServerBooks* DVD under “Controllers”).

The *ServerStart* Disc 1 supplied allows you to conveniently configure the server and install the operating system. The menu-guided configuration includes the server configuration with the *SCU* and the RAID controller configuration with the *GAM* (Global Array Manager) and/or Adaptec Storage Manager.

Descriptions of operating systems not covered in the RAID controller manual are provided in the appropriate readme files on the driver diskettes.

Details of how to operate *ServerStart* and further information can be found in the "PRIMERGY ServerView Suite - ServerStart" manual (see “Literature” on page 107).

Configuring the PCI SAS controller in proprietary PCI slot 10

The server is equipped with a PCI SAS controller with “Integrated Mirroring Enhanced” (IME) functionality in proprietary slot 10. Configure IME **before** you begin with *ServerStart*.

A separate utility is available to the controller for IME configuration. For further information, refer to the “Integrated Mirroring User’s Guide” on the *ServerBooks* DVD (select “Controllers” from the menu).

The *ServerStart* Disc 1 supplied allows you to conveniently configure the server and install the operating system. The menu-guided configuration includes the server configuration with the *SCU* and the RAID controller configuration with the *GAM* (Global Array Manager) and/or Adaptec Storage Manager.

Descriptions of operating systems not covered in the RAID controller manual are provided in the appropriate readme files on the driver diskettes.

Details of how to operate *ServerStart* and further information can be found in the "PRIMERGY ServerView Suite - ServerStart" manual (see “Literature” on page 107).

5.4.2 Configuration without ServerStart

Configuring the Onboard SATA Controller

The server is equipped with an onboard SATA controller, which supports RAID levels 0 and 1 with LSI SATA Software RAID.

The controller has its own configuration utility. More detailed information may be found in the “Embedded MegaRAID Software User’s Guide" manual (on the *ServerBooks* DVD under "Controllers").

You find further information in the Technical Manual for the system board (see “Literature” on page 107) and on the driver diskettes provided.

Configuring the PCI Ultra320 SCSI RAID Controller

The server is equipped with a 2-channel PCI Ultra320 SCSI RAID controller.

The controller has its own configuration utility. More detailed information may be found in the “MegaRAID Configuration Software User’s Guide” manual (on the *ServerBooks* DVD under “Controllers”).

More information on configuring the RAID controller is included in the documentation on the PCI board and on the driver disks provided.

PCI SAS controller in proprietary PCI slot 10

The server is equipped with a PCI SAS controller with “Integrated Mirroring Enhanced” (IME) functionality in proprietary slot 10.

A separate utility is available to the controller for IME configuration. For further information, refer to the “Integrated Mirroring User’s Guide” on the *ServerBooks* DVD (select “Controllers” from the menu).

Operating system installation

- ► Insert the installation floppy disk and the CD for the operating system you want to install.
- ► Reboot the server.
- ► Follow the instructions on screen and in the manual for the operating system.

If your server is equipped with a RAID controller, please read how to install the desired operating system in the related manual.

5.5 Cleaning the Server

CAUTION!

Switch the server off and disconnect the power plugs from the grounded shockproof sockets.

Do not clean any interior parts yourself; leave this job to a service technician.

Do not use any cleaning agents that contain abrasives or may corrode plastic.

Ensure that no liquid enters the system. Ensure that the ventilation areas of the server and the monitor are clear.

Clean the keyboard and the mouse with a disinfecting cloth.

Wipe the server and monitor casing with a dry cloth. If particularly dirty, use a cloth that has been moistened in a mild domestic detergent and then carefully wrung out.

6 Property and Data Protection

The floorstand model is protected against unauthorized opening by a lock. The server is also fitted with an intrusion detection switch which enables the *ServerView* programme to detect and log any removal of the left cover or housing cover and the cover for the HDD modules.

To prevent it being removed from its location, the floorstand model can be secured to a fixed object with a steel cable running through a clip on the back.

The rack model is protected against unauthorised access by means of a lockable rack door.

To protect your system and data internally against unauthorised access, you can use the *BIOS Setup* security functions.

6.1 BIOS Setup Security Functions

The *Security* menu in the *BIOS Setup* provides you with various options for protecting your data from unauthorized access. By combining these options you can achieve optimum protection for your system.

You will find a detailed description of the *Security* menu and how to assign passwords in the manual for the *BIOS Setup* and on the *ServerBooks* DVD (see also “Literature” on page 107).

Preventing unauthorized BIOS Setup calls

You can activate this protection by entering a setup password in the *Security* menu. In addition, you can suppress the `Press F2 for Setup` message in the *Security* menu. This message is then no longer displayed while the server's startup routine is in progress.

Preventing unauthorized system access

You can activate this protection by entering a system password in the *Security* menu.

Preventing unauthorized access to the boards with their own BIOS

You can activate this protection by selecting the value *Extended* for the *Setup Password Lock* field in the *Security* menu.

Preventing the system from booting from the floppy disk drive

You can activate this protection by selecting the value *Diskette Lock* for the *System Load* field in the *Security* menu.

Preventing unauthorized writings of floppy disks

To activate this protection, select the value *Disabled* for the *Diskette Write* field in the *Security* menu.

Protecting BIOS from being overwritten

To activate this protection, select the value *Disabled* for the *Flash Write* field in the *Security* menu.

Protecting the server from being switched on by an external device

To activate this protection select the value *Disabled* for the *Remote Power On* field in the *Security* menu.

Protecting the server from being switched off by a program

To activate this protection select the value *Disabled* for the *Soft Power Off* field in the *Security* menu.

7 Troubleshooting and Tips

CAUTION!

Follow the safety instructions in the “Safety notes and other important information” manual and in chapter “Hardware Installation” on page 33.

If a fault occurs, attempt to resolve it using the measures described:

– in this chapter,
– in the documentation for the attached devices,
– in the help systems of the software used.

If you fail to correct the problem, proceed as follows:

► Make a list of the steps performed and the circumstances that led to the fault. Also make a list of any error messages that were displayed.

► Switch off the server.

► Contact our customer service team.

7.1 Power On Indicator Remains Unlit

The power-on indicator remains dark after you switch on your device.

Power cable incorrectly connected

► Make sure that the power cable(s) is/are correctly connected to the server and to the grounded socket.

Power supply overloaded

► Disconnect the server power plug(s) from the power socket.

► Wait a few seconds before you plug it/them into the grounded socket again.

► Switch on your server.

7.2 Server Switches Itself Off

Server Management has detected an error

► In the *ServerView* program, check the error list or the ErrorLog file and attempt to eliminate the error.

7.3 Screen Remains Blank

Monitor is switched off

► Switch on your monitor.

Screen has gone blank

► Press any key on the keyboard.

or

► Deactivate screen saver. Enter the appropriate password.

Brightness control is set to dark

► Set the brightness control on the monitor to light. For detailed information, refer to the Operating Manual supplied with your monitor.

Power cable or monitor cable not connected

► Switch off the monitor and the server.

► Check whether the power cable is properly connected to the monitor and to the grounded socket.

► Check whether the monitor cable is properly connected to the server and monitor (if it is plugged in with a connector). If a separate graphics card is installed in the server, then the monitor cable must be connected to the graphics card.

► Switch on the monitor and the server.

7.4 Flickering Stripes on Monitor Screen

CAUTION!

Switch off the server immediately. Risk of damaging the server.

Monitor does not support the set horizontal frequency

- ► Find out which horizontal frequency your monitor screen supports. You will find the horizontal frequency (also known as line frequency or horizontal deflection frequency) in the documentation for your monitor.
- ► Refer to the documentation for your operating system or the software for the screen controller for details of how to set the correct horizontal frequency for your monitor, and follow the procedure accordingly.

7.5 No Screen Display or Display Drifts

The wrong horizontal frequency or resolution has been selected for the monitor or for the application program.

- ► Find out which horizontal frequency your monitor screen supports. You will find the horizontal frequency (also known as line frequency or horizontal deflection frequency) in the documentation for your monitor.
- ► Refer to the documentation for your operating system or the software for the screen controller for details of how to set the correct horizontal frequency for your monitor, and follow the procedure accordingly.

7.6 No Mouse Pointer Displayed on Screen

Mouse driver not loaded

- ► Check whether the mouse driver is properly installed and is activated when the application program is started. Detailed information can be found in the user manuals for the mouse, the operating system and the application program.

Mouse controller disabled

The mouse controller on the system board must be enabled if you are using the mouse supplied.

- Check in the *BIOS Setup* that the mouse controller is *Enabled*.

7.7 Unable to Read From / Write To Floppy Disk

- Check whether the write protection for the floppy disk is activated.
- Check the entry for the floppy disk drive in the *BIOS Setup*.
- Check in the *BIOS Setup* whether the floppy disk drive controller and write permission are enabled (see technical manual for system board on the PRIMERGY *ServerBooks* DVD).

7.8 Incorrect Date and Time

- Set the time and/or date in the operating system or in *BIOS Setup*.

i If the time and date are repeatedly wrong when you switch on your server, you must change the lithium battery. Contact our Service group.

7.9 System Will Not Boot

The system will not boot after installing a new hard disk drive.

Incorrect SCSI configuration (Ultra Wide SCSI Controller)

- In the SCSI configuration menu check the settings for the hard disk drives (*SCSI Device Configuration*) and the settings under *Advanced Configuration Options*.

7.10 Drives Reported as "Dead" When Starting System

This error message may occur when the server has a RAID controller.

RAID controller configuration incorrect

► Check and correct the settings for the drives using the RAID controller utility.

Further information is provided in the manual for the RAID controller.

7.11 Added Drive Reported as Defective

This error message may occur when the server has a RAID controller.

RAID controller is not configured for this drive

The drive was probably installed when the system was switched off.

► Reconfigure the RAID controller for the drive using the corresponding utility. Information is provided in the documentation for the RAID controller.

or

► Remove and reinstall the drive while the system is switched ON.

If the hard disk drive continues to be shown as defective, then replace it (see section “Installing/Removing the HDD Module” on page 91).

7.12 Error Message on Screen

The meaning of the error message is explained in the manual for the *BIOS Setup* and in the documentation for the relevant components and programs on the PRIMERGY *ServerBooks* DVD.

8 Hot plug components

This chapter describes how to handle hot pluggable components and/or how to modify your server hardware.

The hot-plug procedure (replacing components while the system is operating) increases the availability of the system and ensures a high degree of data integrity and reliability.

Upgrades, updates and replacement of permanently installed components are described in the "Options Guide" or in the service supplement and may only be performed by trained specialist personnel.

8.1 Hot-plug power supply units

As an option, the fixed power supply unit can be replaced with one or two hot-pluggable power supply units (upgrading may only be performed by qualified staff).

With two hot pluggable power supply units, if a defect occurs in one power supply unit, the other unit ensures that operation continues unimpaired. The defective power supply unit can be replaced online.

CAUTION!

Please observe the safety information in chapter “Important Information” on page 21.

8.1.1 Replacing Hot Pluggable Power Supply Units

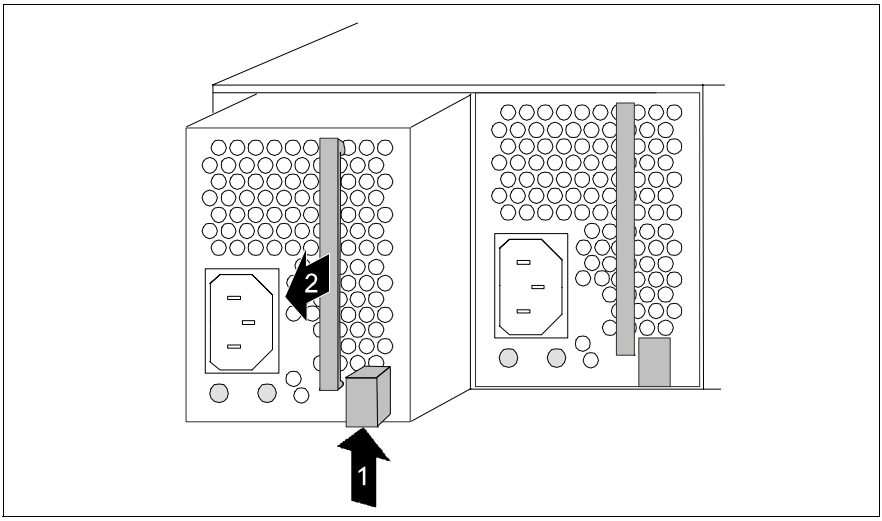

Figure 26: Unlocking and removing the power supply unit

CAUTION!

When replacing a **non-** defective hot-pluggable power supply unit in a non-redundant configuration (**only one** power supply unit), the server **must** be switched off first.

- ► Remove the cable from the installed power supply unit.
- ► Push the green catch in the direction of the arrow (1) while pulling the power supply unit out of its mounting location (2) by the handle.
- ► Slide the new power supply unit into the empty slot until it clicks into place.

  Make sure that the power supply unit engages correctly in the mounting location and is locked in position.

  This is the only way to avoid the power supply unit being shaken out of its mountings and damaged during transportation.
- ► Connect the newly installed power supply unit.

8.2 Hot-pluggable hard disk drives

Up to six hard-disk drives can be installed in the PRIMERGY TX200 S3 server.

The hard disk drives are mounted on a carrier that allows defective drives to be replaced or new drives to be added online (hot-plug). The hard disk drive and the carrier constitute the hard disk drive module (HDD module).

When replacing a HDD module, refer to “Hard disk drive control indicators” on page 66 as well as section “Installing/Removing the HDD Module” on page 95.

CAUTION!

Only a service engineer is permitted to remove a hard disk drive from the carrier.

CAUTION!

The HDD modules must be marked clearly so that they can be replaced in their original slots after an upgrade. If this is not done, existing data can be lost.

CAUTION!

The hot plug function is only possible in conjunction with a corresponding RAID configuration.

Further information about RAID configuration or the RAID level can be found in the RAID controller documentation (see “Literature” on page 107).

CAUTION!

To prevent damage to the connectors, only SCSI hard disk drives may be used in the SCSI basic variant.

To prevent damage to the connectors and loss of data, only SATA hard disks may be used in the SATA basic variant.

To prevent damage to the connectors and loss of data, only SAS or SATA hard disks may be used in the SAS basic variant.

The assembly brackets for the hard disks are identical for all the basic variants. The hard drives can be identified by the different connectors (SCA or SATA/SAS) used for the hard disk drives installed in the carrier.

8.2.1 Handling Hard Disk Drives/HDD Modules

Hard disk drives incorporated in the HDD modules are highly sensitive electromagnetic devices and must be handled with great care. It is extremely likely that incorrect handling will lead to partial and/or total failure of the hard disk drives. These failures can result in data errors and to a loss of data or to total corruption of the hard disk drive.

Please observe the following rules, which will help prevent such problems occurring:

- Only store and transport HDD modules within the limits stipulated in the specification.
- When transporting HDD modules (even over short distances), always use the original packaging (ESD labeling).
- Never expose a HDD module to a temperature shock. Avoid the formation of condensation inside and on the outside of the hard disk drive.

CAUTION!

The HDD module must be acclimatized to its operating environment for a set acclimatization time (table 2).

Temperature difference (°C) (operating environment/ outside temperature)	Minimum acclimatization time (hours)
5	3
10	5
15	7
20	8
25	9
30	10

Table 2: Acclimatization times for HDD module

- Always put the HDD module down carefully, with its largest surface facing downwards, to avoid the danger of tipping over.

8.2.2 Installing/Removing the Dummy Module

Free slots are provided with a dummy module (an empty carrier) which must be removed before installing an additional HDD module.

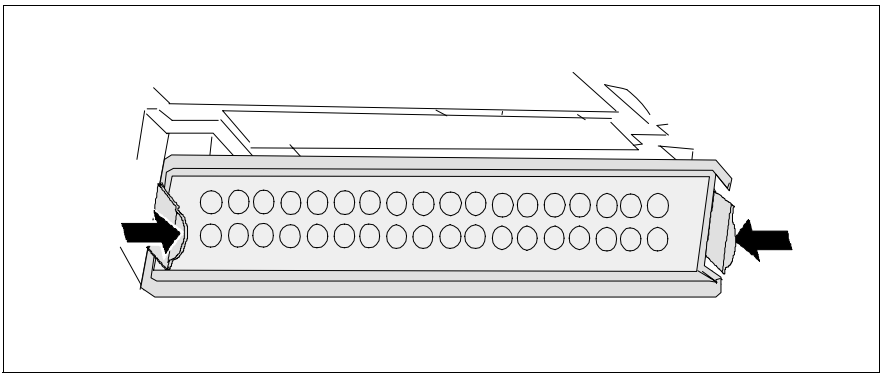

Figure 27: Removing the dummy unit

► Press both tabs on the dummy module together until the locking mechanism disengages and remove the dummy module from the mounting location.

To install a dummy unit, follow the same procedure in reverse order.

CAUTION!

Keep the dummy unit for future use. If the HDD module is removed again and not replaced with a new module, the dummy module must be reinstalled due to cooling, to comply with applicable EMC regulations (regulations on electromagnetic compatibility) and to protect against fire.

8.2.3 Installing/Removing the HDD Module

CAUTION!

Under no circumstances should you remove a HDD module while the system is in operation if you are not sure that the hard disk drive is operated by a RAID controller and belongs to a disk array that is operating in RAID level 1, 5, 10 or 50.

CAUTION!

All HDD modules (drives) must be uniquely identified (see (position 5 in figure 28 on page 92) so that they can be reinstalled in their original mounting locations after they have been removed. If this is not done, existing data can be lost.

CAUTION!

To prevent loss of data when removing an HDD module, make sure that the new HDD module has at least as much storage capacity as the old HDD module.

Several prefabricated stickers with the storage capacities are provided with the server so the storage capacity of the hard disk can be recognized at a glance when the HDD module is replaced. A sticker corresponding to the capacity should be applied to the front of each hard drive (HDD module) (position 5 in figure 28 on page 92). In case no suitable sticker is available, blank stickers for labeling are also provided. The stickers are color-coded to make identification easier.

The hard disk drives which can be ordered for the PRIMERGY TX200 S3 are delivered as HDD modules which include the hard disk drive preinstalled in a carrier. The hard disk drive may only be removed from the carrier by personnel with the appropriate technical training in compliance with the appropriate ESD guidelines (see section “Modules with Electrostatic-Sensitive Devices” on page 27).

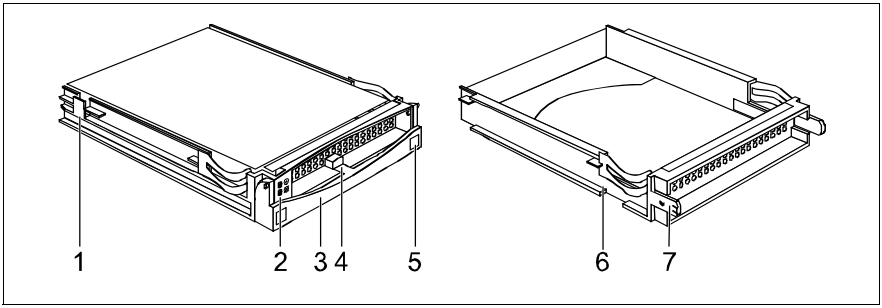

Figure 28: HDD Module and Dummy Unit

1	HDD Module (carrier with hard disk drive installed)
2	Indicators HDD Busy (LED green) HDD Fault (LED orange) For description see table in section “Hard disk drive control indicators” on page 66.
3	Handle for locking and unlocking the HDD module
4	Button for locking and unlocking the handle
5	Ridge for the application of a sticker with the current drive name
6	Dummy unit
7	Tabs for unlocking the dummy unit

Unlocking an HDD module

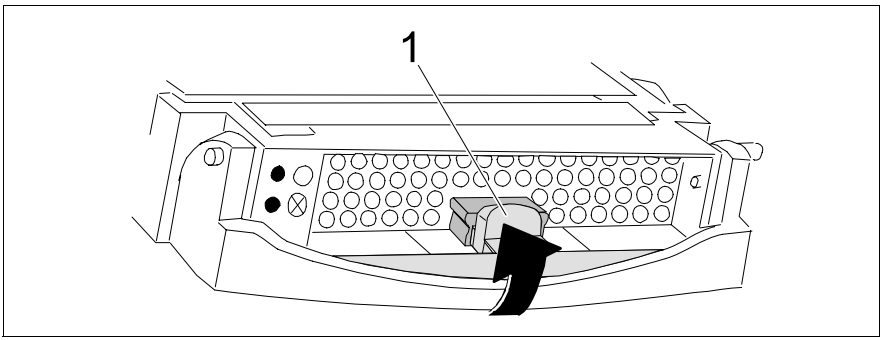

Figure 29: Unlocking an HDD module

- ► Open the locking mechanism by pressing the locking button (1).
- ► Push the handle of the HDD module fully in the direction of the arrow.

If the HDD modules are provided with a transport lock (1 in the next figure) remove these before you open the locking mechanism.

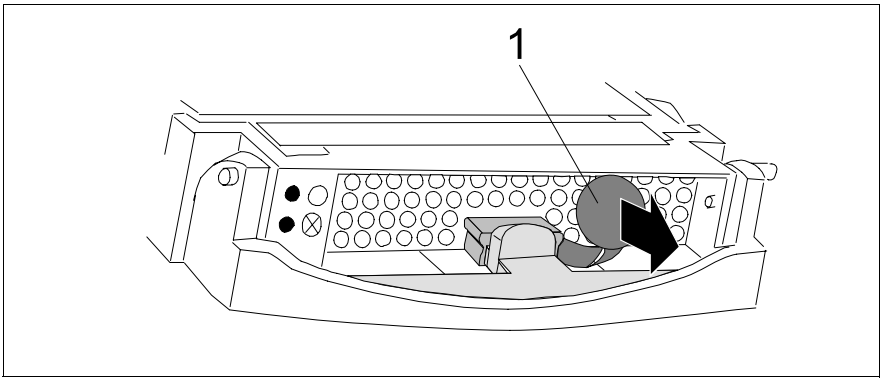

Figure 30: HDD module: Removing the transport lock

Installing the HDD module

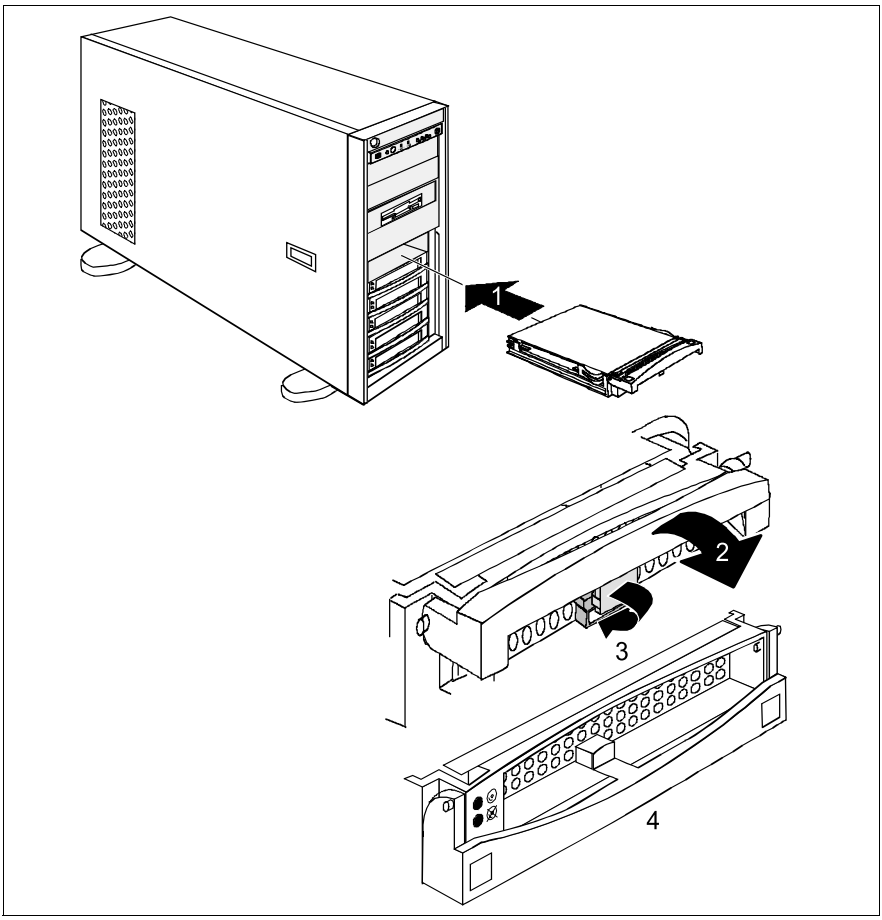

Figure 31: Installing the HDD Module

- Unlock the HDD module as described in section “Unlocking an HDD module” on page 93.
- Carefully push the HDD module into the empty slot (1) until it stops.
- Push the handle completely in the direction of the arrow (2) until the locking mechanism (3) engages (4).

To remove the server, follow this procedure in reverse.

Removing the HDD module

If you want to replace a HDD module during operation, proceed as follows:

CAUTION!

Only remove a HDD module during operation if the drive is not currently being accessed. Observe the control LEDs for the corresponding HDD module (see “Hard disk drive control indicators” on page 66).

- ► If you want to remove a HDD module that is not defective, the drive must be first set to offline via the software (RAID controller configuration software).
- ► Now pull out the HDD module a few centimeters.
- ► Wait for at least 60 seconds.

  This period is necessary for the RAID controller to recognize that an HDD module has been removed and for the hard disk drive to come to a stop.
- ► Pull out the HDD module fully.
- ► Insert the new HDD module as described under “Unlocking an HDD module” on page 93 and “Installing the HDD module” on page 94.

CAUTION!

If you have removed an HDD module and not replaced it with another one, you must insert the dummy unit in the empty slot again due to cooling requirements, the applicable EMC (electromagnetic compatibility) regulations and for fire protection. Ensure that the dummy module engages correctly in the slot.

8.3 Replacing a Hot-pluggable CPU/System Fan

The server is equipped with four system fans and two CPU fans.

CAUTION!

The actions described in this section may only be performed by personnel with the appropriate technical training. (The device can be seriously damaged if it is opened without authorization or if repairs are attempted by untrained personnel.)

In order to replace a defective fan, the left side cover (floorstand model) or the housing cover (rack model) must be removed as the fans are not directly accessible (see section “Opening/Closing the Housing” on page 99).

Please observe the safety information in chapter “Important Information” on page 21.

Please observe the following:

- You must always discharge static build up on yourself before replacing the hot-pluggable fan. For this purpose, you should use a suitable grounding cable, which connects you to the system unit during the hot-plug operation.
- Take hold of the hot-plug fan only by the green fan handle (Touch Point) as shown in figure 33 on page 97.
- Place fans on a static-free surface.

The four fans work in redundant mode, which means that a defective system fan can be replaced at the next scheduled service. A defective CPU fan must be replaced immediately.

The failure of a system fan is indicated by the global error display on the front and rear of the server (lights orange).

The fan that has failed is indicated on the fan itself. The indicators are not visible unless the housing is open.

► Remove the left side cover (floorstand model) or the housing cover (rack model) (see section “Opening/Closing the Housing” on page 99).

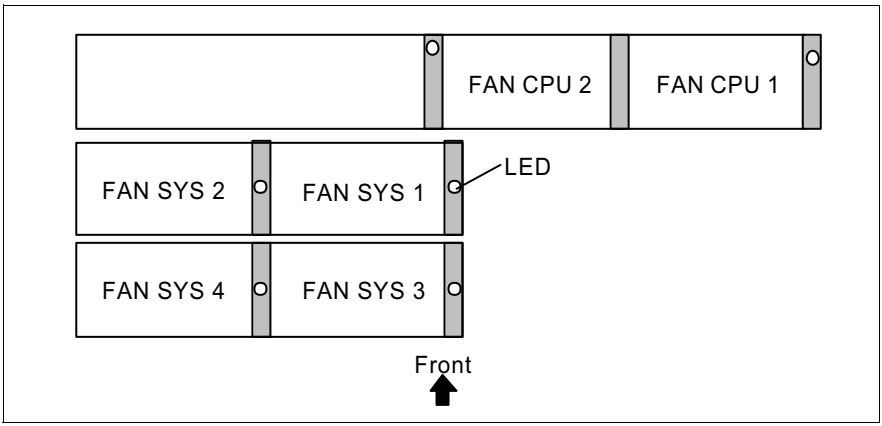

Figure 32: Arrangement of the Fans

► Use the LED (not lit) to identify the defective fan.

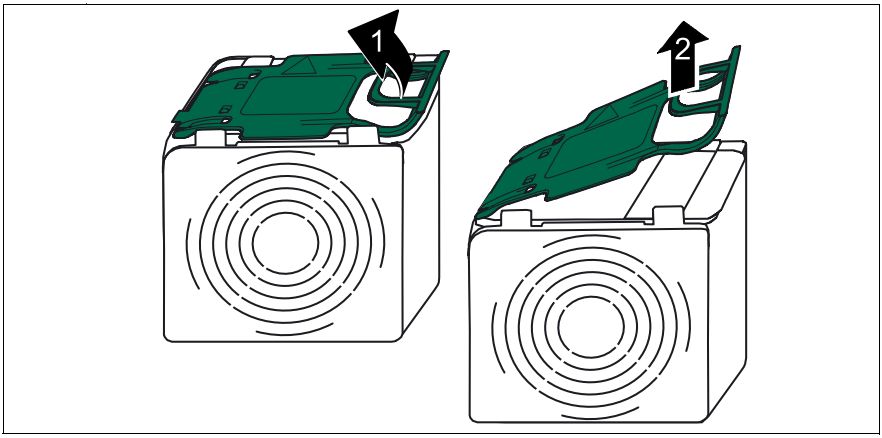

Figure 33: Removing the Fan

► Pull the fan handle in the direction of the arrow (1) to release the locking mechanism.

► Pull the fan out of its mounting location by its handle (2).

► Set the fan down on the outside of the server.

CAUTION!

Never set a removed/defective fan down inside the server. Risk of short circuit!

► Open the green handle on the new fan, place the fan in the fan box and press the handle together to engage the locking mechanism.

The new fan is tested by Server Management. The corresponding LED then lights green (fan is OK) or does not light at all (fan is not OK).

► Replace the left side cover (floorstand model) or the housing cover (rack model) (see section “Opening/Closing the Housing” on page 99).

8.4 Opening/Closing the Housing

CAUTION!

The device can be seriously damaged if it is opened without authorization or if repairs are attempted by untrained personnel.

Please observe the safety information in chapter “Important Information” on page 21.

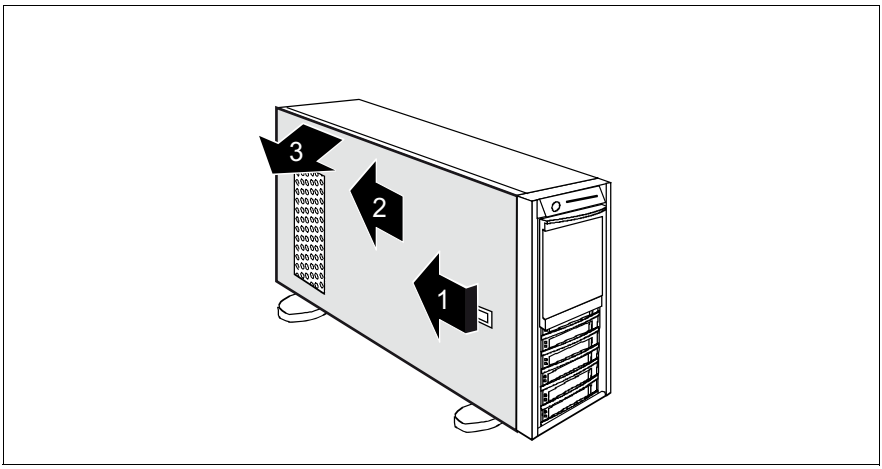

Figure 34: Removing the Side Cover

- Pull the locking lever as far as it will go (1) and push the left side cover about 2 cm in the direction of the arrow (2).
- Remove the side cover (3).

The cover is replaced in the reverse order.

Abbreviations

AC
Alternating Current

ANSI
American National Standard Institut

ASR&R
Automatic Server Reconfiguration and Restart

ATA
Advanced Technology Attachments

BIOS
Basic Input-Output System

BMC
Baseboard Management Controller

CC
Cache Coherency

CD
Compact Disk

CD-ROM
Compact Disk-Read Only Memory

CHS
Cylinder Head Sector

CMOS
Complementary Metal Oxide Semiconductor

COM
Communication

CPU
Central Processing Unit

DC
Direct Current

DIMM
Dual Inline Memory Module

DIP
Dual Inline Package

DMA
Direct Memory Access

DMI
Desktop Management Interface

ECC
Error Checking and Correcting

ECP
Extended Capabilities Port

EEPROM
Electrically Erasable Programmable Read-Only Memory

EGB
Elektrostatisch Gefärdete Bauteile

EMP
Emergency Management Port

EPP
Enhanced Parallel Port

EMV
Elektromagnetische Verträglichkeit

ESD
ElectroStatic Discharge (elektrostatische Entladung)

FPC
Front Panel Controller

FRU
Field Replaceable Unit

FSB
Front Side Bus

GAM
Global Array Manager

GUI
Graphical User Interface

HDD
Hard Disk Drive

HSC
Hot-Swap Controller

I²C
Inter-Integrated Circuit

I/O
Input/Output

ICM
Intelligent Chassis Management

ID
Identification

IDE
Intergrated Drive Electronics

IME
Intergrated Mirroring Enhanced

IRQ
Interrupt Request Line

LAN
Local Area Network

LBA
Logical Block Address

LCD
Liquid Crystal Display

LUN
Logical Unit Number

LVD
Low-Voltage Differential SCSI

LWL
LichtWellenLeiter (fiber optic cable)

MMF
Multi Mode Faser

MRL
Manually Retention Latch

NMI
Non Maskable Interrupt

NVRAM
Non Volatile Random Access Memory

OS
Operating System

PCI
Peripheral Component Interconnect

PDA
Prefailure Detection and Analysing

POST
Power ON Self Test

RAID
Redundant Arrays of Independent Disks

RAM
Random Access Memory

ROM
Read-Only Memory

RSB
Remote Service Board

RTC
Real Time Clock

RTDS
Remote Test- und Diagnose-System

SAF-TE
SCSI Accessed Fault-Tolerance Enclosures

SAS
Serial Attached SCSI

SATA
Serial ATA

SBE
Single Bit Error

SCA
Single Connector Attachment

SCSI
Small Computer System Interface

SDDC
Single Device Data Correction

SDR
Sensor Data Record

SDRAM
Synchronous Dynamic Random Access Memory

SEL
System Event Log

SMI
System Management Interrupt

SSU
System Setup Utility

SVGA
Super Video Graphics Adapter

USB
Universal Serial Bus

VGA
Video Graphics Adapter

Literature

PRIMERGY server system manuals are also available as PDF files on the *ServerBooks* DVD. The *ServerBooks* DVD is a part of the “ServerView Suite”, which is supplied with every server system.

The current versions of the required manuals may be downloaded for free from the Internet as PDF files. The overview page showing the online documentation available in the Internet can be found via the URL:
http://manuals.fujitsu-siemens.com (select: *industry standard servers*)

[1] **Safety notes and other important information**

[2] **Ergonomics**

[3] **Warranty**

[4] **Returning used devices**

[5] **System board D2109 and SAS controller D2107**
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[6] **BIOS Setup**
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[7] **PRIMERGY TX200 S3**
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[8] **Quick Start Hardware - PRIMERGY TX200 S3**
Leaflet

[9] **Quick Start Software - PRIMERGY ServerView Suite**
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[10] **PRIMERGY ServerView Suite**
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